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LONDON AS IT IS;

BEING

A SERIES OF OBSERVATIONS

ON THE

HEALTH, HABITS, AND AMUSEMENTS

OF

THE PEOPLE.

BY

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P R E F A C E.

‘LONDON AS IT IS’ supplies a tolerably abundant store of materials for observation and reflection, too ample, indeed, if taken in a comprehensive sense, to be embraced within the bounds of an ordinary treatise.

Neither is it intended to take a panoramic view of the place, but to apply the microscope to the examination of the beings who inhabit it; the object of the present essay is an enquiry into the circumstances which are either prejudicial or conducive to the health and happiness of the people, including a review of their habits, customs, amusements, and morals.

Ten years ago the writer of these pages took up his abode in London; in the fol-

lowing year, 1828, he was appointed resident Medical Officer of the Dispensary of the original London University, which was opened in that year; the Dispensary merging into the North London Hospital in 1834, he was attached to this latter Institution, and has continued to be so up to the present time. The earlier part of his life having been spent in the country, most of the impressions of the metropolis were novel to him, and situated as he was he could not but observe the difference between not only the classes of maladies prevalent in London and the country, but also between the physical conditions and dispositions of the people.

Observation, casual at first, led to investigation; this extended itself from effects to causes, and the result is in the reader's hands.

The preservation of health, or in other words the prevention of disease, has not engaged the attention of physicians so

much as the *cure* of maladies; some persons may be inclined to think that the bias of self-interest has been sufficiently strong to account for the direction Medical Science has taken,—no such motive, however, has actuated authors or practitioners; the Medical Profession has always been distinguished for liberality, and while this imputation is repudiated it is admitted that it is difficult to assign a cause for there being so few writers on the principles of Hygiene.

From the days of Hippocrates, who wrote on the preservation of health, to the present time, the subject has been as it were in abeyance; it is true treatises have occasionally appeared, but they have been “few and far between.”

Thirty years have now elapsed since the active and philanthropic mind of the late Sir J. Sinclair applied itself to the consideration of this subject, and led to the publication of his “Code of Health and

Longevity ;” but it has not been a study for intellectual minds alone, for as great a sensualist as ever ate nightingales in luxurious Rome,* has helped us to a similar chapter of advice, namely, Dr. Kitchener. Since these treatises were published, the subject has been taken up by numerous authors in France, among whom may be mentioned Hallè and Nysten,† Tourtelle and Rostan.

More recently we have had essays on the subject in this country, among which may be mentioned Dr. Coombe’s useful work on the Physiology of Health, in which he lays great stress on due attention being paid to the surface of the body ; Dr. Kilgour’s Lectures, the works of Dr. S. Smith, Dr. Dungli-

* It is related of Æsop the actor, that he once paid a sum equal to £800 of our money for a single dish of singing birds, and melted down precious stones to mix with his wine. See Encyc. Brit. Art. *Bird*, and *Lempriere*.

† Contributors to the “Dictionnaire des Sciences Medicales.”

son of the United States, Dr. Hodgkin, and Dr. Johnston's *Stream of Life from the Cradle to the Grave*; these works, however, refer almost exclusively to individual rather than general health.

The following essay refers chiefly to the British metropolis, comparison being drawn between its former and its present state, between the town and country, and, lastly, between London and foreign countries, and cities.

In suggesting improvements with a view to promote the physical and moral health of the metropolis, the writer has been compelled to animadvert on the culpable neglect of the Government, in neither undertaking public works nor giving encouragement to plans projected by private individuals, having this very desirable object in view.

The moral health of the people, as well as their physical condition, claims, and ought to ensure the fostering aid and protection of the legislature, but those who fill the

various offices of the executive government appear to give themselves very little trouble about the matter.

Education, for instance, the leading-string of Science and Art, as well as the foundation of religious feeling, moral excellence, and every social institution, — the chief ingredient in the duty the parent owes the child, even this has been allowed to grow wild; it is true the apathy of our natural guardians has been partially counter-balanced by private benevolence and munificence, but there has been no directing power, and consequently harmony and system have been wanting.

It is hoped, however, that a new era has dawned; Lord Brougham has the honour of first bursting the bonds of prejudice, and giving a new impulse to public opinion; new seats of learning are established, and the sentiments of our beloved Sovereign are thus expressed: “Communicating, as she does, with all classes of

society, she cannot but perceive that the greater the diffusion of religion, knowledge, and the love of freedom in a country, the more orderly, industrious, and wealthy is its population.” *

Sir F. Head, in his instructive and amusing book from the Brunnens of Nassau, makes many sensible remarks on the monkish course of study pursued in our dim-sighted ancient Universities; a valuable contribution has also been made to the cause by Mr. Brigham, of Boston, U.S.; and recently a Central Society of Education has been formed in London, which, no doubt, will do good. So that, notwithstanding the

* Duchess of Kent's reply to City of London Address on the Princess Victoria coming of regal age, eighteen, May 24, 1837.

What a contrast presents itself between the ideal picture of the Queen of England and the present state of unhappy Spain, where ignorance, bigotry, and anarchy conspire to lay waste the most luxuriant of lands, and to annihilate, by a cruel, exterminating civil war, a race renowned in history, and the most graceful, in mien and feature, of all the nations of Europe!

apathy of the Government, the public may be congratulated that, though the cause of their intellectual and physical improvement does not progress with the rapidity of a steam-engine on a rail-road, yet it advances steadily and surely, under more favourable auspices than have shone forth in almost any preceding age.

The first chapters of the following treatise contain much statistic information ; and, if the reader find his path tedious through this matter-of-fact portion of it, he will perceive the prospect expand as he progresses, for he will meet with more speculative, and, it is hoped, more interesting matter, as he advances in his journey.

J. H.

4, *George-street, Euston-square,*
June 24, 1837.

LONDON AS IT IS.

CHAPTER I.

Introduction—The Moral and Physical condition of Man a fine study—Malte Brun's ideas on the subject—Importance of Health—Its Basis—Physiological sketch of the Human Frame—Characteristics of Health—Mental and Bodily Health inseparable—Health supported on a Tripod—Progress of its decay.

WHATEVER relates to the welfare of man, either in his individual or collective capacity; whether it tend to raise his moral condition, promote his happiness, or improve his physical organization, is matter of deep interest, and must, more or less, concern every one. Various writers on various subjects have remarked that man's best study is himself; whether he be influenced by philanthropic zeal, or actuated by selfish

motives, he is almost certain of finding it a profitable undertaking, for he places himself in a position to confer benefit not only on his fellow-creatures, but on himself in particular.

To *know* one's self is no easy task, though we have the world as a mirror constantly before us ; to know others is not so difficult, though we have not half so many opportunities of judging of their thoughts and actions ; but to point out plans whereby we may all be benefited is more difficult than either. The moral improvement of man is a work of great importance, and opens a wide and inviting field to the philanthropist and the philosopher, conducing to his mental and bodily health, and it is also a work of extreme interest. It is true it is confined to man's physical organization, but the study of *that* unfolds to the mind of the inquirer a prospect that is boundless. Its sublimity tends to raise him into communion with the great Author of the universe, and his mind becomes inspired with awe by the contemplation of it. Malte Brun thus eloquently apostro-

phizes the human frame: —“The physical organization of man, while it subjects him to those laws of generation, growth, and dissolution, which extend to all orders of living nature, bears, at the same time, in each of its parts, and as a whole, a character so peculiar, so extraordinary, and so sublime, that it is impossible to suppose even the most distant relationship between the brutes, which do nothing but feed and propagate on the surface of the earth, and him who is born to exercise dominion over them.

“That upright and elevated post which indicates both dignity and courage; those hands, the trusty instruments of our will, the dexterous performers of the most magnificent, as well as the most useful works; those eyes, uplifted from the dust, whose intelligent glance can survey the immensity of the heavens; those organs which enable us to express thought by articulate sounds of endless variety; the admirable union of strength and suppleness in all our members; finally, the harmony and perfectibility of all

our senses, assign to us the first rank among living beings, and give us both the right to claim, and to hold the empire of the earth.”*

The soundness and perfection of this beautiful machine, the order and regularity of its working, under what may be considered adverse circumstances, is the subject chosen for the following pages ; in other words, an inquiry into the health of the inhabitants of this vast and crowded city, the metropolis of the British empire, and into the causes that are prejudicial to it.

Health to the animal economy is what reason is to the mind, it is the perfection and full enjoyment of its best faculties and powers, and it may be observed that these two frequently depend on, and afford mutual support to, each other.

But the importance of health to man is very great, not only on account of his own individual feelings, but by reason of the active part he may be called on to perform in life ; and, moreover, should he not possess this

* *Geograph. Univer.* vol. i., p. 534.

blessing himself, he will most likely occupy part or all of the time and attention of one who does.

The human body is a complicated piece of machinery, wonderfully perfect in all its parts, and beautifully adapted for the duty each is destined to perform ; perfect harmony prevails amongst the various organs, and should one, through accident or natural weakness, become incapable of fulfilling its office, a general sympathy is experienced by the others, and, as they mutually assist and depend on each other, the failing of one not unfrequently leads by degrees to interruptions in the others, and eventually to a break-up of the whole system ; it is therefore of paramount importance to keep the whole machine in perfect order, and the most trifling irregularities in the working of any of its parts should be instantly attended to : “ *principiis obsta.*”

The preservation of the human frame in a state of soundness depends on two points, its nutrition and the exercise of its various powers.

Its nutrition consists of air and food, its exercise may be either mental or physical ; and on the due administration of these depends the health of the whole system, with the exception of interruptions arising from other causes over which we have no control, but which will be hereafter considered.

It may not be out of place here to make a few physiological remarks, that the subject may be more clearly understood by those who have not made anatomy a part of their study.

The brain is the seat of the reasoning power ; of this we have abundant evidence, it is sufficient however to mention, that injuries of the one are immediately followed by derangement of the other. That an extraordinary connection exists between them we well know, but of the nature of that connection we know nothing. The brain is also the fountain head of the *physical* nervous system. Two sets of nerves extend from it to the most distant parts of the body.

One set conveys the will from the sensorium to the extremities, the other conveys

information from the extremities to the brain—information obtained through the medium of the senses.

The nature of the nervous power is not at all understood, it has occupied the attention of all physiologists, particularly those of Germany and France, from a very early period. Sir C. Bell has thrown more light on the subject than any former writer, yet we are utterly at a loss to comprehend by what means the impression of notes is conveyed through the medium of the eye from a music-book to the brain, and thence re-conveyed through the agency of the fingers to the keys of a piano, and all in an instant, and with correctness that shews that rule, not chance, presides over the process.

The nervous power is essential to the healthy condition and exercise of all the external and internal parts of the body, whether their movement be voluntary or involuntary. The brain is consequently an organ of paramount importance in the animal

economy, and occupies a situation in the body where it is least likely to receive harm or injury.

The heart is the centre of the two circulating systems, and supplies renewed blood and warmth to all the parts of the body. It sends blood, of a scarlet colour and warm temperature, through the arteries to the various organs and extremities, imparting thereby substance, animation and vigour to the whole frame. It receives the same blood back through the veins, of a dark crimson colour, and colder than when it went forth, and containing certain impurities; it sends the blood to the lungs dark coloured, as it is, to undergo certain changes. It receives back the blood from the lungs restored to its bright colour and warm temperature, and, being once more fit for use, is again forwarded over the whole body; thus the heart is a double machine, propelling, by its double contraction, scarlet fresh blood through the body, and dark *used* blood to the lungs; and, in the interval between the pulsations,

receiving fresh blood from the lungs and *returned* blood from the various parts of the body.

The beating of the heart commences a considerable time before we are born, and terminates at our death.

There are from twenty to twenty-five pints of blood in the body, all of which passes through the heart and the lungs once in about five minutes.

Like the nervous power, a supply of fresh blood is essential to the healthy condition of every part of the body.

The circulation of the blood was not known to the ancients. It was discovered by William Harvey, a physician of London, about the year 1613, but he pursued his researches for several years after that time, and it was not till 1628 that he demonstrated his discovery to the public.

The lungs are the organs of respiration. Their office is to furnish a constant supply of fresh air, to cleanse the blood (to use a homely expression), to warm it, and, in fact, to restore it to a fit state to be re-

turned to the heart for circulation over the body. It has been already mentioned that the blood circulates through the lungs for the purpose of coming into contact with the atmosphere, and that purpose is fulfilled by its being exposed to the air most freely at every inspiration.*

The air consists of 79 per cent. of nitrogen gas and 21 oxygen. As far as our knowledge goes, the latter is the essential gas in supporting life; and Sir H. Davy and Lavoisier have ascertained that a man requires 32 cubic inches of it, about a pint, every minute, consequently he should have a supply of at least five pints of fresh atmospheric air every minute.

The air that has been once inhaled is rendered unfit for respiration, from its having already parted with a portion of its oxygen, and from its being charged with impurities that it is the duty of the lungs to throw off.

Foul air, or a scanty supply of that which

* The air does not actually come into contact with the blood, but the film that separates them is so fine that its effects pass through it.

is fresh, is dreadfully injurious to health, and has in many instances quickly proved fatal. From this cause one hundred and twenty-three of our countrymen perished in one night in the black hole in Calcutta, in 1756.

These three organs, the BRAIN, the HEART, and the LUNGS, lean against, support, and are essential to each other, and form the tripod of life; upon these three every minute of our lives depends. Cut off the influence of either of these, for a single minute, and death immediately ensues. They are in full operation from birth, and, when death approaches to close our mortal career, after the energies of the mind are gone and the strength of the body is prostrate, these three still struggle on, but their "occupation's gone," the rest of the body is already inanimate, they give way at last in the reverse of the order in which they have been above described. The breathing sinks, the pulse ceases, and the mysterious nervous power gives way to—death.

Upon these the principle of life depends; but there are one or two other organs de-

serving of notice, inasmuch as they minister to the wants of the animal economy.

The stomach is the receptacle into which the food is received, and where it is digested previous to its being rendered fit for the nutrition of the body.

After it has been some time empty, its sides form themselves into corrugations, which generate a feeling that we designate appetite.

When the food reaches it, the process of digestion immediately begins, a motion peculiar to it and the small intestines, called the *peristaltic* action, commences, which waves and pushes the food to and fro, so that it becomes intimately mixed with the fluid, the stomach itself supplies, to promote digestion, the *gastric* juice. After the food is properly mingled with this fluid, its character is somewhat altered, and it becomes what physiologists term *chyme*; it then passes on from the stomach to the intestines, where it undergoes other changes before its nutritive parts are separated and absorbed for the nourishment of the body. The stomach, in its healthy state, is a most fastidious and sensi-

tive organ, it not only objects to certain kinds of food, but it is the first to sympathize with any injury or mischief that occurs, even in the most distant parts of the body. If the head suffer, it is violently disturbed ; a bruise on either of the extremities causes it to fail in its usual duty ; and affections of the mind completely arrest not only its digestive powers, but also prevent the feeling of appetite ; so sensitive is it that physiologists consider this organ as the centre of sympathy. It is exceedingly unmanageable in people of delicate health, and is easily deranged even in the most vigorous constitutions.

When it goes wrong, indigestion is the consequence, it either refuses to perform the office of digestion altogether, or it produces a fluid that is vitiated in itself, and turns its own contents into an acid deleterious mass. Indigestion is produced by various causes as is above observed, and affects seriously, and in a direct manner, the operations of the three great springs of life, the brain, the heart, and the lungs ; and it con-

sequently leads to innumerable ailments in various parts of the body. Thus the stomach, although it is an organ of secondary importance compared with either of the three just mentioned, yet it requires an equal share of attention where the preservation of health is the object in view.

The liver is a large and solid body, situated contiguous to, and in contact with, the stomach. Its office is to produce the bile, the use of which is scarcely, if at all, known; it mingles itself with the digested food by oozing into the intestines a little below the stomach.

It seems to stimulate the intestines to action, for the more abundant it is, the more frequent and lax the evacuations; and these, moreover, owe their colour to the presence of this fluid.

If the liver become torpid and fail to generate bile, as is often the case in persons of sedentary habits, the bowels become slow, the evacuations colourless, and the general health soon suffers.

The bile sometimes regurgitates from the

intestine into the stomach, and producees nausea and siekness ; oecasionally it is absorbed and earried into the blood, where it shews itself over the whole body, and forms the eomplaint ealled jaundiee.

In tropieal elimates, the liver is very liable to disease and derangement, and eonsequently elaims a eorresponding degree of attention. It is invariably in a disordered state in hypoehondriasm and melaneholy, which maladies indeed *were* supposed to be eaused by the deranged state of this organ.

These two organs, then, the stomach and the liver, although of minor importance in the immediate support of life, yet are indispensable accessaries to the proper working of the human maehine ; functional derangement or structural change in either, would, if not set right, soon lead to disturbance of the main-springs of life, and to a general break-up of the system.

Naturalists, in speaking of the three great kingdoms, the animal, vegetable, and mineral, occasionally distinguish them by saying that

Minerals—grow.

Vegetables—grow and live.

Animals—grow, live, and move.

Man possesses most of the faculties common to animals, and others in addition of a more exalted character, as reasoning and speaking. The power of moving, of locomotion, is a faculty we possess in great perfection, and it is supposed that, notwithstanding the swiftness of some animals, and the strength of others, none can compete with man in undergoing fatigue in respect of distance or time : the faculty of walking is indispensable to the poor man and to most persons engaged in active life, it is exercised by people in every rank, and its value is appreciated by all. The preservation of this faculty, in its full vigour, is of vast importance : a kind of mutual dependance exists between it and the general health ; this supplies the power for the exercise of that, and that in return promotes the health and vigour of the system.

It is hoped that these physiological remarks may assist the reader in under-

standing in what manner many causes that are prejudicial to health may operate.

Health has always been considered one of life's best blessings, a boon beyond all price, and a reward to virtue and temperance. The ancients went so far as to deify it, and the goddess Hygeia had her temples, statues, and emblems, wherever the heathen mythology prevailed. Health delights in simplicity, and prefers the frugality and the innocence of a rural life to the luxury and dissipation of a town. It is, however, wonderfully tractable, and adapts itself to climate, habits, and customs of every shade and description: it agrees best with regularity of habits, but it endures excesses with great patience; in young men it blooms often under the most adverse circumstances, and maintains its balance in spite of the many irregularities of youth; when most neglected, it is often a most constant attendant, it endures the heat of tropical climates to a considerable extent, but it actually flourishes in the extreme cold of the arctic regions. It will bear almost constant expo-

sure to the atmospheric air, and often, as in the case of tempest-tossed sailors, withstands the violence of wind and wave for many days and nights together.

Health is seldom duly appreciated by those who have enjoyed a long and uninterrupted possession of it. Such persons may be said to live in blissful ignorance of its real value.

The invalid, who, restless and in pain, lies awake and counts the hours of a live-long, dreary night, anxiously watching for the approach of dawn, with the vain hope that returning day may bring relief to his sufferings; or he that walks in constant dread of falling prostrate at the sudden and awful visitation of an epileptic paroxysm,—these can give an opinion on the value of health; they might indeed say that it is not possible to *estimate* it; that it was beyond all price.

It is by its loss that it is duly appreciated, and those who are seldom deprived of it are generally the most impatient when ill.

Health is essential to the exercise of

man's intellectual and physical powers, as well as to his comfort and happiness. 'Animus cum corpore languet.' The mind loses its vigour, is incapable of receiving pleasing impressions, and even becomes permanently deranged, through the ailments of the body; its operations are materially interrupted, its powers of composition and invention nearly suspended, and the imagination is only capable of figuring a dark and gloomy prospect. Without health the physical powers are clogged, if not altogether still, man is no longer equal to the active duties of his station in life, but becomes helpless as a child; his spirit and strength are no longer able to brave the storms of life; he sinks to a low ebb, and trembles before the chilling effects of sickness, and perhaps, of want.

It is hardly necessary to observe that health is essential to man's appearance. It gives to the countenance freshness, bloom, and animation, while its absence is marked by the cheek being pallid and wrinkled, and the eye dim.

All important as is the possession of health, it is often lost from inattention to the means of preserving it. It is maintained (like life, as already observed) on three supports, AIR, EXERCISE, and FOOD. Those persons have invariably the best health whose lives form a practical illustration of this rule. It is not, however, a rule without exceptions; for there are many, who enjoy a tolerable share of health, who take no exercise, are very intemperate, and prefer the fumes of tobacco and spirits to the sweetest air in the universe. These instances, however, are few, compared to the former, and certainly form the exception to the rule. Air is indispensable to our being, without it we could not exist a moment, and as has already been observed, a considerable quantity of it is required for our consumption.

So with food, the wear and tear of the body must be made good by a supply of material, and, unless the nourishment furnished be proper in quantity and quality, functional derangement and structural disease speedily

ensue. A mutual dependance exists between all the various departments of the body, and a general sympathy prevails among them ; it does not accord with the principle of vital action that any part of the body should remain unused, every part has a duty to perform, and every part should therefore be exercised, not only for its own sake, but for the sake of the whole system. The rust which cankers one part will soon extend to the whole. Regular and varied exercise of the mind and limbs is therefore absolutely necessary to the maintaining of the general health. Those who have pursued the simple, but sure, indications pointed out by nature, have generally attained to a great age. In all the cases of great longevity that have come to our knowledge, the persons' daily habits were so modelled as to follow to the letter the simple laws that govern health.

One of the impediments to health consists in an over-anxiety for the preservation of it. This sometimes depends on a derangement in the nervous system, arising from the digestive and biliary organs being disordered ;

it seems sometimes, however, to spring up of its own accord, and the hypochondriac's phantoms, in time, undermine his bodily strength, and that, in turn, increases the irritability of the nervous system, and furnishes rather a curious illustration of cause and effect. The health is at last hunted down by this harrowing process, and often the mental imbecility is so great as to be past recovery.

Persons are commonly negligent of the first inroads made in their health by complaints of various shades and descriptions. Colds, in particular, are allowed by many persons to come and go as they may, and the paths towards disease become broad and beaten ways, through which some day or another the insidious enemy makes a forced and hurried march, and lays a siege to the constitution that it is not easy to withstand; perhaps the mischief only amounts to a *breach* being made; this, however, is but modifying the evil; the strength may not again be so completely restored but that successive attacks will eventually

prevail in breaking up the system, a general decay follows, the vital powers struggle for a time, exhausted nature sinks, man ceases to exist, and his cold inanimate remains quickly return to *earth*.

CHAPTER II.

Value of health greater in London than in the Country
—To Officers of the Executive Government—Representatives of the People—Advocates and Agents in Law Courts.

It may be said that health is alike valuable to all; but it will not be difficult to point out that this is not the case in a general sense, however true it may be in reference to individuals.

Persons in responsible situations and discharging important public duties are, to a certain extent, public property; and their health and vigour are of consequence to their country, more especially as the country becomes liable for their maintenance as long as they live, whether they remain

capable of doing their duty or not. In this way the health of certain individuals is of more consequence than that of the million who toil at their several callings; for, great as is the inconvenience of a certain number of the *operatives* failing in their work, it would be greater were the *manager* or *director* removed. So in a ship, or regiment of soldiers, the duty of the officer is considered more important than that of his men, he shares more largely in the responsibility and in the reward. In a campaign, the colonel of a regiment has several led-horses in his train, in order that, in the event of his losing one, he may be immediately supplied with another, to enable him, above all others, to keep his post.*

It is perfectly true that, however important the duties of an officer may be, it is no sooner vacant than there is a rush of aspirants anxious to succeed to it; but, in a majority of cases, independent of the in-

* Dr. Kitchener considered the culinary art superior to all others, and regarded the health of his cook of more importance than that of any other person.

interruption and confusion occasioned by a change of functionaries, the interests of the public would be better served by retaining an old servant than taking a new one.

Cities and towns are generally the residences of persons holding high and responsible situations, and the salubrity of such places should therefore form a chief object of attainment with those persons themselves, and with every person in any way connected with them. What, for instance, can be of greater consequence to a nation than that their ruler, their sovereign, should enjoy health and strength, for the faithful and vigorous discharge of the momentous duties incumbent on him ?

He, of necessity, spends very much of his time in this great city, the metropolis of his dominions ; and, whether it be healthy or otherwise, he must take his chance, like ‘ many thousands of his poorest subjects.’ The metropolis is also the residence of those great officers of state, the king’s ministers ; to them we look for our legislative improvements and for firmness and integrity in the

executive government. A day's interruption to the functions of even one of these, from sickness or other causes, might lead to disastrous consequences and destruction of life and property. Constant vigilance is required, and duties often so arduous in themselves as to wear the strongest constitutions.

Frequently it happens that the fate and fortune of whole families and communities are balanced and weighed out by the collected learning of the judges of the land, assembled in consultation in the courts in the metropolis: threatened mischief prevented, or seasonable relief obtained, by the ready attention of the judge to the appeal of the injured applicant; or questions of vital interest to individuals are arranged and pleaded through the week's or month's study and labour of some able advocate, upon information only to be gleaned in the capital, while the success of the cause mainly depends on his possessing intellectual and physical energy to bear him up in his undertaking. These, and many other such circumstances, certainly point out the

value of health in London to be greater than elsewhere; not to the individuals, but to the public in general. Neither are these the only grounds for such an opinion. The two great councils of the nation hold their meetings in the metropolis. The peer and the member of the House of Commons spend half the year in the metropolis, and not only remain in it, but toil incessantly all the time, each in his place intrusted with the interests of his neighbours and constituents at home, and bound at the same time to serve the public at large. The destinies of his country are committed to his charge, and the honest representative finds his duties as arduous as they are important.

Is it not a matter of vast consequence to Edinburgh or Dublin that their representative, after travelling four hundred miles, should be able to keep his health in London? The answer must be obvious.

All professional men in London have duties to perform more than the same class of persons in the country, and often, indeed, they have to act for their country brethren :

the clergy of the metropolis have very much more to contend with than their fellow pastors in the provinces; the juvenile immorality, the naked vice, the flagrant crimes that are daily practised in every parish of this great Babylon, certainly present more formidable demands for energy in their calling than is requisite elsewhere.

CHAPTER III.

Physical condition of the Inhabitants of London—
Appearance of the People—Comparative Health of
Young, Middle-aged, and Old Persons—Ages of
Inhabitants—Middle-aged most healthy—Health of
the Upper classes—Of the Poor.

THE appearance of the people in the streets of London is one of the first things that attracts the notice of strangers. The native inhabitants, or those who have been born in the metropolis, and whose forefathers have also resided in it for two or three generations, are somewhat under the middle size, but their limbs and features are generally well formed. They are of spare habit, but rather muscular; they are characterized by firmness of carriage, and an erect, indepen-

dent air; they move with a steady, measured step, and generally at a very brisk pace. The features are generally very strongly marked, and pointed; the eye in particular presents an openness and fulness that is remarkable. The tout-ensemble of the countenance bears an air of keenness, animation, and intelligence, that distinguish the Londoner from his country neighbour.

“He is either absorbed in business, or distracted by the thousand engagements that dissipate time, thought, and feeling, in this large metropolis. He has therefore too commonly a look of hurry and abstraction. Wherever he happens to be, he is on the point of going somewhere else; at the moment he is talking on one subject, his mind is wandering to another; and, while paying a friendly visit, he is calculating how he shall economize time so as to pay the other visits allotted to the morning.”*

The spareness, the lines of thought engraven on his countenance, indicate a certain wear of the system from moral and

* Irving's Sketch Book.

physical causes ; and the pale complexion assists in betraying a truth that cannot easily be concealed, namely, that the inhabitant of the metropolis does not possess the physical vigour, the stamina of constitution, in a word, the HEALTH which is necessary to the full enjoyment of the comforts and blessings of life. The inhabitants have much to encounter ; many are the causes prejudicial to health constantly in full operation against them ; and they acknowledge that they feel the effects of these by their professions and conduct.

It is not to be wondered at that people so situated should feel more than ordinary uneasiness at the slightest irregularity in the system ; and even to meet the evil half way by a nervous timidity. They have early recourse to medical assistance ; the most trifling uneasiness is referred to the medical practitioner for explanation and removal ; hypochondriac notions, to a certain extent, are acquired, so that he lives in a state of morbid sensibility. A person who has been in London from his birth seldom enjoys

such vigorous health as one who has been brought up in the country, and afterwards repairs to the capital. It seems as if the children reared in large towns and cities never acquired the sinewy strength and robust vigour of children born and bred in the country.

From various causes, the inhabitants experience a constantly excited state of system, an irregular, and perhaps a languid, circulation; there is a burdened state of the physical powers, the wear and tear of the whole frame is very great, and the consequent effects strongly marked.*

Middle-aged persons enjoy their health best in London, and next to them old people. Children suffer greatly from the operation of causes which are prejudicial to health in the metropolis; to rear them at all is a task of difficulty, and is not unfrequently impracticable. These facts are shewn by the

* London has been found to suit very old persons better than the country; and after seventy-five or eighty, the Londoner has a greater chance of life than the countryman.

population returns, by the bills of mortality, and by tables calculated to guide Assurance societies in reference to the value of life.

Of the various grades in society, the middling class, that large and respectable body of the community, stand highest in point of healthy vigour. Next to this comes the aristocracy of the land, and, lastly, the poor and destitute.

There is a large proportion of middle-aged persons in London, compared with what is found to be the case in the provinces. This arises chiefly from the great influx of strangers who come from all parts, and take up their residence in the capital; but it partly proves the inability of weakly persons, and particularly of children, maintaining their ground against the less salubrious air of the town. By the census of 1821 it was found that, in 20,000 persons taken promiscuously, there were

	Under 20.	From 20 to 60.	Above 60.	
In England	9781	8730	1489	20,000.
In London	8270	10,642	1088	20,000.

The great disproportion between the number of young people in town and country is remarkable, and cannot be fairly accounted for, without admitting that a larger proportion die in London than in the country. There is, however, no necessity for assuming that such is the case, for we have clear evidence that it is so.

From the census of 1831 it appears that, of 20,000 persons dying, taken promiscuously,

There died under 5		5 & under 20	20 & under 60	60 & upwards	} 20,000
England	6964	2064	5638	5334	
London	7610	1550	6722	4118	

When we come to speak of the relative duration of life in and out of town, other circumstances will be considered tending to show the precarious tenure by which children hold their lives in London.

The aged do not suffer so much from residing in town as children, but they also labour under a material disadvantage, as may be seen by the two foregoing tables; in fact, it appears the capability of retaining health and vigour in London corresponds

with the strength of the person, and, of course, with his age.

The merchant, professional man, or tradesman, in middle age, in comfortable circumstances, and active employment, seems to possess the best health; on this class certainly falls the great mass of business to be transacted; it is therefore essential that they should possess strength equal to the duty they have to perform. Of this they are fully aware, and accordingly every ordinary means is taken to maintain their equilibrium of health. Many commercial men indeed, lose half their character as Londoners, by reason of their being at their place of business only for a certain number of hours during the day, while their residence is in the suburbs, or even five, eight, or ten miles distant from the town.

That the middle-aged persons are more efficient is evident from the circumstance of their being seen in all public, municipal, parochial, and miscellaneous, offices, where the duties are heavy and responsible; whereas, in the country, corresponding situ-

ations are frequently held by very old and infirm persons. The old watchmen were the last remains of persons of great age being retained in situations where activity and physical strength are essential to the persons that hold them.

Medical men have great opportunities of judging of the different grades of health among the different classes of the community, and their experience goes to prove that those who possess the comforts of life, and seldom go into excess, are more healthy than those who plunge into luxury and dissipation, or those that have not the means of obtaining the necessaries, and much less the comforts, of life. Whoever observes the merchant in his counting-house, the professional man engaged in his daily avocations, or the tradesman at his business, will readily come into the opinion that, in London at least, this class of persons stands highest in health and vigour. The regularity, punctuality and activity commercial men in London exhibit in transacting their business, their being always at their post when called

on, the facility with which grand, petit and coroners' juries are assembled, the full attendance of members at meetings of various societies and companies (particularly if a dinner crowns the business of the day),—all go to establish the fact of the middling classes in London being in a good condition, exceeding that in which either their superiors or inferiors are found. It is no doubt, difficult to compare the salubrity of the different classes of the community, still much information may be obtained by general observation, by looking at the assembling of certain bodies of men either for the purpose of manual labour, for transacting literary or commercial business, or for discharging the important duty of legislation in the great councils of the nation.

The rate of mortality among the several classes which will be immediately considered, also assists in ascertaining the relative degree of health.

After noticing the middle classes, let us turn to the higher classes, the aristocracy of the land.

They spend half the year in London, and the other in the country or on the continent. Still they must be considered as forming an important, though small, portion of the inhabitants; and a portion on which the effects of what may be called “Life in London” are most clearly seen.

Many of these occupy the metropolitan and rural element, just as it suits their pleasure; their existence, indeed, seems to depend on their moving in and out of town at certain periods of the year; not in accordance with what might be considered the natural inducements, the change of season, but in the servile obedience to the most capricious of all tyrannical and arbitrary monarchs—*Fashion*.

They are generally in excellent health and spirits on their arrival in town, perhaps above the natural standard; their sinews are firm, their complexions fresh, and their whole system braced up to a pitch of perfect health and vigour: but how long does this state of things remain? how long does this harmonious whole remain entire? how

soon are the chords relaxed, broken, and not unfrequently the frame work of the machine itself, totally destroyed ! The fresh and healthy bloom vanishes, the animation droops, the vigour subsides, the strength gives way, and the system sinks to an artificial level, which is the state we have to speak of, in reference to the health of the higher classes in London.

Their complexion is soon more sallow than that of the constant inhabitants. If you take a survey of the Lords or Commons in parliament assembled, when the session is somewhat advanced, their appearance is any thing but prepossessing : perhaps it would be difficult to find two assemblies where the members, for the most part, present so sallow, sickly, and haggard, an aspect. You may hear the fame of an individual sounded through the land, as being a patriot, statesman, or an orator. Those who hear are awed into silent admiration at the fire of his eloquence, and those who read are dazzled by the brilliancy of his language.

You figure to yourself a being of superior mould, sublime in countenance, and dignified in stature; you attend the senate's midnight debate, you ask which is he? and a pale emaciated shadow of mortality is pointed out to you, sitting cross-legged and cross-armed; his hat on a head resting on a sunk doubled-in chest! The description answers for many of our most able legislators, and such is the British Senator at his post.

Observe the high officers of state, the judges in the law courts and the counsel: these too have a divided existence; one season being spent in the town, the other, fortunately for them, in the country, which enables them to recruit their mental and bodily energies for each successive metropolitan campaign.

Nor is this shattered condition peculiar to the male branches of the families: before the season is half spent the rose fades from the cheek of both wife and daughter, and the complexion of delicacy supervenes; a debilitated state of body and nervous irritability, accompanied by mental lassi-

tude, and perhaps cankering ennui, overtake them in a few short months.

Compare the complexions at a church, theatre, or assembly, in London, with those seen at corresponding places in the country, and the contrast will be striking.

Of the three classes of the community, those who suffer most in point of health are the poor, and this fact is not only observed in London, but in most towns; and, indeed, in most places the poor, strangers to the luxuries, unaccustomed to the comforts, and often destitute of the necessities of life, are doomed to undergo, in addition to the miseries consequent upon poverty, even more severe affliction still, namely, privation of health.

Struggling for existence, and denied the sufficient enjoyment of rest, food, and clothing, they are constantly compelled to brave the vicissitudes of life, from which, and from other causes to be hereafter more fully considered, they hold their health and their lives by a more precarious tenure than any other class of persons. It is perfectly true that many of the lower ranks display in their

persons a fine athletic appearance, and physical strength in their usual labour, that is not surpassed by men in similar stations elsewhere ; the brewers' draymen, the coal-heavers, and the bricklayers' labourers are generally men of great power, and are, perhaps, capable of putting forth more strength on an occasion than any other class of men ; but this arises from the severe training they undergo in the heavy work they are often called on to perform.

The wear and tear of such men is, however, very great, and to meet it a great abundance of nourishment, both solid and fluid, is absolutely necessary.

These men wear out and become infirm sooner than others ; they seem to work out their threescore years and ten in two thirds of the time—like the clock, the faster it goes, the sooner it runs down ; the best machine can but do its quantum of duty, the materials will wear out sooner or later, tho' the human frame is, in all its parts, a machine of wonderful construction and surprising power.

Our present business, however, is with the actual state of the health of the lower classes, and, to investigate that, our chief dependance must be placed in actual observation of these persons ; for in this country we have few statistic returns or other conclusive means of drawing a comparison between this and other classes. Dr. B. Hawkins, in reference to this part of the subject, observes* “ the present conclusion is, that, in general terms, poverty, cold, and moisture (which two latter circumstances are generally included in the first) are the greatest enemies to the enjoyment of health and long life, and that competence or an easy condition, is the strongest safeguard of the body.

“ Of an equal number of infants taken among the poor and the easy classes, it will be found, at least in France (where the argument has been most agitated), that the proportion of deaths among the former is double, and that wherever is the greatest portion of misery there will also attend the

* Hawkins, p. 206, Med. Statistics.

largest share of mortality. In epidemic visitations the mortality begins and ends with the poorer classes, and on these are their principal ravages exhausted.

“ It seems to be partly on this account that women (at least in England) die in a less frequent proportion, and are longer lived on an average than men, because they are usually more secluded from the conflicts of life, are less exposed to the vicissitude of weather, and to severe labour.”

It will be remembered that, in the late visitation of the cholera to this country, in 1832, the disease was confined almost entirely to the poor and needy ; those whom misery and want had reduced to a state of emaciation in body and despair in mind became ready victims to the scourge ; great was the havoc caused by it among them, while very few, comparatively speaking, who were in easy circumstances, and could command the comforts of life, were seized by it. Other epidemics, more general in their influence, but less fatal in their consequences, such as fevers, influ-

enza, bowel complaints, eruptions among children constantly make their appearance in London, and are more severely felt by the lower classes than by any other. The writer of these observations was attached to a large dispensary for a period of six years, and on him fell a large share of the duty of visiting the out-patients belonging to the institution. During that time there was not a period of two months' duration in which there was not an epidemic of some kind prevailing among the poor in the district, the field of his observations, and at the same time nothing was heard of such epidemic being at all felt by persons in the middle or upper ranks of society. If we inspect the munificently endowed hospitals of the metropolis, the parochial infirmaries, the dispensaries, and all places open for the reception or the relief of the sick poor, we shall find them full of miserable inmates, and their doors thronged with applicants for relief; although this may be considered only as the result of these places being open to persons free of

expense, still it shows most plainly that a very large proportion of those who are poor are also suffering from sickness.

It is difficult to draw comparisons between the different classes of persons ; there is no scale, or test, or criterion by which we may observe the greater or less share of health enjoyed by this or that class.

The upper ranks do not associate with the lower, and their lives are altogether different ; many of the aristocracy are members of those great assemblies, the houses of Lords and Commons ; a considerable portion of the middle classes belong to literary societies, clubs, and corporate companies ; and among the lower classes we find here and there associations for mutual support, termed benefit societies, but how these are to be compared, without some general statistic return of the ages, sickness, and mortality existing among their members being regularly made on sufficient authority, it is difficult to say. From what the writer has been able to glean from the works of those who have treated of the subject, as well as from

his own observation, the conclusion is, as has already been advanced, that the middle classes enjoy the best share of health, the aristocracy next to them, and, last of all, the poor and destitute.

CHAPTER IV.

Duration of Life—Original Statistics of Population—Bills of Mortality—Mortality in London in the eighteenth Century—Also in the nineteenth—Disappearance of some Diseases—Prevalence of the Plague formerly—Increase of some Maladies—Salubrity of London compared with that of the Country—Mortality in London in this Century, increasing at present—Mortality in the Country also increasing—Cornwall the healthiest County—Table of the Mortality in every County in England, during the last thirty Years—Prejudicial Effect of large Towns on Health of Inhabitants—Malthus' Opinions of their effect on Children—Great Salubrity of the Islands of Alderney and Sark—Susmilch's Opinions regarding influence of Towns on Health—Aristotle's Opinions—Dr. Price's—Ages of Persons in Town and Country—Table of Probable Duration of Life in London and at Northampton, at the end of last Century—The same deduced from the Equitable Insurance Company's Experience—Table of Probable Duration of Life at present in the Counties of England and in London—Less Longevity in London than in the Country—London Atmosphere not prejudicial to very Old Persons—Salubrity of London

superior to that of Continental Cities—Mortality in Manchester, Liverpool, Birmingham, Glasgow, and Northampton—Tables of Mortality in some Cities and states of Europe and of America—Mortality among British troops at home and abroad—General Remarks.

ALTHOUGH we have great difficulty in determining the actual state of the salubrity of the metropolis, we have abundance of conclusive evidence relating to the value and duration of life. The population returns, the bills of mortality, and the experience of the Insurance companies, and of other Corporations, Societies, and bodies of various kinds, affords very clear and satisfactory testimony on the subject. Before, however, going into the consideration of the evidence drawn from these sources, it may not be out of place to take a brief survey of the means by which the data are obtained. The oldest records bearing any resemblance to statistic returns, are those mentioned in Exodus (chap. xxx., v. 11.), wherein Moses is commanded to take cognizance of the numbers of the children of Israel for ecclesiastical purposes ; but the first actual census is described in the first chapter of Numbers,

which Moses is commanded to take for the purposes of war. We have no authentic account of censuses in after ages, at least, for a long series of years, but, when the Egyptian Empire was in its glory, B.C. 1200 or 1300, no doubt Sesostris knew well the number of his subjects before he placed himself at their head for the conquest of the world; neither can we suppose that the Grecian clans, B. C. 1184, were gathered to invade Troy in a thousand ships, or that the great kings and generals of their respective ages, B. C. 400 and 300, Xerxes, Darius, and Alexander, led forth their legions without the numbers being first taken: the accounts however are not extant. We come down to A. D. 226, before we meet with a regular return of the numbers of the people, their ages, the mortality and the value of life. Alpianus, prime minister and secretary to Alexander Severus, has furnished us with the earliest authentic record of this nature.*

* Pandects. D. L., 68 n. ad legem Falcid. Edin. Review, March, 1829.

Little is known of the statistics of Britain beyond the last century. The bills of mortality of the metropolis are the oldest registers of the kind to which we can refer, with even a chance of being able to form correct conclusions. These bills had their origin, it is said, in the visitations of the plague. Graunt, the oldest English writer on the subject, says in his treatise, published 1662, "I believe that the use of keeping these accounts was taken from the plague, for the said bills (for aught appears) first began in the said year 1592, being a time of great mortality, and, after some disuse, was resumed again in the year 1603, being the first year of king James's reign, and the great plague then happening likewise.

"We come next to show how they are made and composed, which is in this manner, viz. When one dies, then, either by tolling or ringing of a bell, or by bespeaking of a grave of the sexton, the same is known to the searchers corresponding with the said sexton. The searchers hereupon (who are antient matrons sworn to their office) repair

to the place where the dead corpse lies, and by view of the same, and by other enquiries, they examine by what disease or casualty the corpse died, thereupon they make their report to the parish elerk."

Rickman says the bills of mortality were first used in 1562, and were intended to afford timely notice of any alarming increase of the plague. Many writers have made this the subject of their investigations.

Major J. Graunt's work, "Natural and Politieal observations on the bills of Mortality," the work from which the above extract is taken, is the first; after him came several German authors, Susmieleh, Busching, and others, whose essays, however, did not make their appearance for upwards of a century after that of Graunt. Since these, Dr. Casper, of Berlin, has thrown considerable light on the subject in various treatises on statistics. Dr. Odier of Geneva, Dr. Villermè of Paris, Dr. Heberden, Sir G. Blane, Mr. Riekman, Mr. Finlayson, and Dr. Bateman, have followed up the same subject in England; Dr. B. Hawkins's

“Medical Statistics,” published more recently, 1829, contains a store of useful information on the subject. Numerous tables embracing the antitheses, life and death, health and sickness, increase and decrease of population, have been compiled by the above writers, and by others connected with Insurance Companies and Benefit Societies, which, while they prove a source of profit to some, form records of great interest, curiosity, and entertainment, to all who make this subject their study.

It is much to be regretted that History presents us with scarce any regular statistic returns of population, salubrity, or sickness, in this country, and it is only of late years that attention has been paid to the subject. “As an estimate of the population, or mortality before the late enumeration in 1760, always depended much on conjecture and opinion, on account of the great acknowledged deficiencies of the registers.”*

“Neither has any record of epidemics or predominant sickness been left us by any

* Malthus.

physician; the bills of mortality drawn up from the reports of old women, and containing no reference to the state of the seasons, are the only substitutes for such records.”*

These bills are miserably imperfect in many points; first, they do not include the five great western parishes of the metropolis, St. Mary-le-bone, St. Pancras, Paddington, Kensington, and St. Luke, Chelsea; and these parishes, by the census of 1831, contain nearly one-fifth of the whole population of the capital, viz., 273,587 out of 1,453,662. The increase and extension of London has taken place chiefly in this division, consequently the bills afford little or no information respecting the increase or decrease of births or deaths in it.

Next, as the population is constantly in a state of fluctuation and migration from one district to another, these registers, applying only to a part, cannot be regarded as a proper criterion for the whole; again, we find that the bills present an imperfect return even of the districts within their limits.

* Bateman.

The births are only those baptized according to the rites of the Church of England, consequently all Dissenters, Quakers, Roman Catholics, and Jews, are omitted; and as to the deaths, although no funeral can take place in London in any of the regular church-yards without a searcher's warrant, yet burials in Westminster Abbey, St. Paul's, the Temple, Rolls, Lincoln's Inn, Tower, Charter-house, and at several hospitals, are not taken cognizance of in these registers: and, moreover, the Jews and Roman Catholics having burying grounds of their own, many of these are also omitted. Still-born children are often omitted in the births, but counted among the deaths.

With respect to the diseases of which people are reported to have died, the bills must present a still more uncertain account. The duty of enquiring respecting the death of a person and the cause thereof, is still vested by the parish authorities in the searchers; these *should* view the body of the deceased, but being more anxious on securing their fee, than obtaining correct information, they

carry back the first answer that is given them, seldom troubling themselves to view the body, and often without even entering the house they enquire at. That such a system should have prevailed three hundred years ago is not surprising, but that it should be still pursued, in all its ancient fallacy, must astonish every one. Dr. Heberden remarks that, although the mistakes and misrepresentations in them are too obvious to be insisted on, some credit may be given them from the correspondence of one year with another.

The salubrity of towns has always been observed to be less than that of rural districts, and the greater the town, generally speaking, the less the degree of salubrity. From the magnitude and vast population of London, this rule may be expected to apply very aptly with respect to it, and it does so. It applied, however, much more forcibly in the last century than it does at present.

The duration of life in London, amongst people generally, has been greatly extended within the last hundred years. About the

year 1700, the mortality in this metropolis was one in twenty-five, that is to say, out of every twenty-five persons, one died in the year, in other words, 4 per cent per annum. The rate of mortality went on increasing for forty years, at which time, 1741, it was as high as one in twenty; the fearful proportion of a twentieth part of the whole population being taken off every year. The number of deaths far exceeded that of the births, and, as then the facility of communication was less, and fewer persons came from the country to settle in London than at present, the population materially diminished: in the year just alluded to there were 32,169 deaths, and of births only 14,357.

This depopulating tide did not escape the observation of the people. They became seriously alarmed, and began to investigate the causes of it. They came to this almost unanimous opinion—that the cheapness of *gin*, or, as it was then called, *strong-waters*, was the cause of the evil. It was not, however, till ten years afterwards, in 1751, that

any improvement began to manifest itself; in that year Parliament passed an act restraining the distillation of spirits, and checking the use of them by additional duties. Upon which, petitions poured into the House of Commons from various parts, setting forth the beneficial effects of the new regulation on the morals and health of the people. The great abuse of ardent spirits at this time, and the scenes of dissipation and debauchery that were the consequence, attracted the attention of HOGARTH, the painter, who, in his humourous style, has given us a rich representation of a street scene, under the title of '*Gin-lane.*' That the spirits were justly blamed, scarcely admits of a doubt; for from that date the annual returns have shewn a gradual and rapid increase of inhabitants.

It was calculated by an able writer, living at that period, that, about the years 1750-60, half the children born in London died before reaching the age of three; and out of sixteen, only five reached the age of ten years.*

* Price, p. 195.

So obvious were the disadvantages, under which children laboured, that the Parliament passed an act, in 1767, requiring "that all parish infants should be sent to the country within three weeks of their birth, and there kept until they were six years old." The children belonging to the Foundling Hospital, in London, are all kept in the country till they are five years old.

No tables of the probability of life have been formed of late years ; and it is therefore difficult to draw a strict comparison between the present and former expectation of life. By the last census it was found that there were larger proportions of young persons, indeed of infants, among the population of London than there formerly were ; and this proves, very forcibly, that they must be stronger and longer lived, but does not enable us to say how much the actual probability of their life is improved. That it is materially improved is obvious, but to what extent remains uncertain.* By a reference

* See Robertson on Mortality and Physical Management of Children.

to the official returns of the respective periods, we find that, out of every thousand deaths,

In 1731 there died under the age of five .	461
In 1831.	380

During the last eighty years, the population within the Bills of Mortality has very much increased, but the number of burials annually have scarcely increased at all; again, it was usual to find the number of burials greatly exceeding that of the christenings, whereas now the contrary is the fact; which shows that, instead of the population diminishing, as it frequently did in the last century, the inhabitants increase in number, independently of new settlers.

Early in the last century, the number of deaths in London greatly exceeded that of the births, which may have arisen partly from the influx of strangers who came to reside in it, but it must have been caused chiefly by the unhealthiness of the town, for the influx has continued the same, but the balance is reversed.

The following table, taken from the Bills

of mortality, shews the progressive improvement that took place during the last century.

Year.	Christenings.	Burials.
1701 . .	15,616 . .	20,471
1710 . .	14,928 . .	24,620
1720 . .	17,479 . .	25,454
1730 . .	17,118 . .	26,761
1740 . .	15,231 . .	30,811
1741 . .	14,957 . .	32,169
1750 . .	14,548 . .	23,727
1760 . .	14,951 . .	19,830
1770 . .	17,109 . .	22,434
1780 . .	16,634 . .	20,517
1790 . .	18,980 . .	18,038
1800 . .	19,176 . .	23,068
1811 . .	20,645 . .	17,043
1821 . .	25,232 . .	18,451
1831 . .	28,263 . .	25,337
1835 . .	26,128 . .	21,415
1836 . .	26,255 . .	18,299

The value of Life in London was raised 100 per cent. from 1741 to 1811; the mortality at the former period being annually one in twenty, and at the latter, one in forty; thereby shewing that, in seventy years, such an improvement took place in

the health of the metropolis that the chance of a person's living through the year was exactly doubled. It will be seen hereafter that the improvement of late years in the value of life is not confined to London ; it has been observed in England generally, but not to such an extent as in the metropolis. One of the most remarkable circumstances attending the improved state of health in London is the fact of several diseases having almost entirely disappeared from among us, during the last hundred years. Dysentery, scurvy, ague, small-pox, and some others, are instances of this, whereas the plague has not visited the metropolis for more than a hundred and fifty years. It almost entirely disappeared after the great fire in 1666, and from 1680 its visitations ceased altogether.

In the last century, the other diseases, already mentioned, disappeared, which accounts in great measure for the improvement in the general health in the metropolis. There were, however, certain drawbacks to it, namely, the great increase of two other

maladies, Apoplexy and Consumption. The number of deaths caused by apoplexy in 1800 was about double what it was a century before, as the following extract from the bills will shew.

Year.	Burials.	Deaths by Apoplexy.
1700 . .	21,000	. . 157
1800 . .	19,000	. . 300

This is certainly an encroachment of disease, not however upon the living, but to the exclusion of other maladies, and is indicative of a greater degree of comfort, or perhaps luxury, existing among mankind.

The most serious obstacle to the otherwise universal improvement in the value of life is the great increase of that most formidable disease, Consumption. In the beginning of the seventeenth century one death out of eight was caused by it; in the beginning of the eighteenth, one out of six; at the commencement of the present century, rather more than one in every four deaths was caused by it, namely 26 per cent.; and in 1808, the proportion was as high as 27 per cent. or nearly one out of three and a half. The

proportion has since declined to about one in four and a half, which corresponds to the number dying of the same disease in France. In addition to these two, there has been an increase in some other diseases, as Scarlet-fever, Gout, Dropsy, Palsy, Mania, and generally all those diseases of which the brain and the nerves are the seat.*

In comparing the salubrity of London with that of the country, we may refer to what has been said with respect to the appearance of the inhabitants of the town; it is scarcely necessary again to mention the evident contrast of complexion and general appearance; it is generally easy, by means of these alone, to discover a countryman in London or a townsman in the country; and it is certainly true that health and life, physically speaking, are more fully enjoyed in the country than in towns, and, of course, more fully than in this vast and densely peopled capital. No great care seems to have been taken of the public health in the

* Hawkins, Med. Stat.

metropolis prior to the annual visits of the plague in the sixteenth and seventeenth centuries, and it was not until half the town was burned, in 1666, that the inhabitants began to build their streets and houses on a more extended and capacious plan.

Graunt remarked (in 1662) “as for the unhealthiness, it may well be supposed that although seasoned bodies may and do live near as long in London as elsewhere, yet new comers and children do not; for the smoaks, stinks, and close air are less healthful than that of the country.”

Within the last thirty years various facts have been established and published, shewing the comparative salubrity of countries and towns; the importance of the subject is becoming daily more fairly understood, and it is beginning to receive the attention it deserves. The mortality in London in 1801, was one in thirty-one; in 1811, one in forty: in 1821, it had diminished to one in forty-two, which is the highest point of salubrity which has ever been attained in the metropolis; the current of human life seems thns to have

been at its lowest ebb in 1741, and to have reached its flood in 1821. It was predicted that by 1831 the value of life would be still farther raised, but such has not turned out to be the case, the mortality having increased to one in forty-one by the last census. Nothing is more uncertain than the tide of population, its fluctuations set all calculation at defiance. It was predicted, about a century ago, that London would, by this time, contain several millions of people, and this opinion was advanced by the first mathematicians of the day. Time has shewn how much these philosophers were *out* in their calculation of probabilities.

Nor has this falling off in salubrity been confined to the metropolis ; it has taken place in England generally, the annual mortality having increased from one in fifty-four (1821) to one in fifty-two (1830.)

The cause of this fall in the value of life is unquestionably attributable to the abuse of ardent spirits, the duties having been lowered, and greater encouragement given to their consumption, between the two periods

named. It will be seen hereafter that not only has the mortality, but pauperism and crime, have increased, since spirituous liquors have been drunk in the excess which has been observable of late years.

Like the metropolis, the country went on improving in salubrity from an early period up to 1821, from which time it has been receding, the annual mortality having been as follows :—

	In England.				In London.		
1801	1	in	41	.	1	in	31
1811	.		51	.	.		40
1821	.		54	.	.		42
1830	.		52	.	.		41
Average			<hr/> 49½	.	.		<hr/> 38½

Thus the rise and fall has been about the same in London and the country, the actual difference in the value of life being about 20 per cent. in favour of the latter; in other words, the countryman has five chances of living to a certain age while the Londoner has but four. The following table * shews

* Compiled from the Parish Registers and from the Censuses of the various periods.

how London and the several counties stand in point of salubrity; Cornwall claims the advantage of being the most healthy county in England, the deaths there being fewer even than in Wales, notwithstanding the many casualties occurring on its extensive sea coast and in its mines, which might have been reasonably expected to have swelled the list of burials. The table shews, farther, that the greatest degree of salubrity is found in the rural districts and villages, and the greatest mortality in those counties wherein manufactures are carried on, and in which there are large towns.

It displays, besides, that the most unhealthy county, Lancaster, is far above the metropolis in point of salubrity.

MORTALITY IN ENGLAND AND WALES.

County.	Average mortality of last 30 Years.	1801.	1811.	1821.	1830.
Cornwall .	1 in 63 .	61	61	70	60
Monmouth .	62 .	52	67	64	67
Sussex .	59 .	57	60	64	68
Hereford .	59 .	51	63	67	58
Dorset .	58 .	55	62	61	55
York, N. Riding	58 .	53	61	63	57
Gloucester .	57 .	45	60	62	61
Bedford .	56 .	49	57	60	59
Rutland .	56 .	54	56	56	59
Somerset .	56 .	46	59	61	58
Suffolk .	56 .	45	54	65	60
Wiltshire .	56 .	47	63	60	57
Devon .	55 .	43	56	63	58
Hertford .	55 .	48	54	57	61
Oxford .	55 .	46	57	61	58
Westmoreland	55 .	52	56	56	56
Cumberland .	54 .	53	58	55	53
Lincoln .	54 .	47	59	59	60
Norfolk .	54 .	48	49	61	59
Berkshire .	53 .	47	51	58	56
Derby .	53 .	47	54	58	55
Shropshire .	53 .	40	58	60	55
Essex .	51 .	42	49	60	55
Huntingdon .	51 .	41	54	55	55
Hampshire .	51 .	45	48	59	54
Buckinghamshire	50 .	41	52	59	54
Leicester .	50 .	44	48	55	54
Northampton	50 .	46	52	51	51
York, W. Riding	50 .	41	54	53	52
Northumberland	49 .	49	52	51	47
Warwick .	49 .	35	48	59	57
Worcester .	49 .	37	52	53	54
York, E. Riding	49 .	38	45	58	57
Cambridgeshire	48 .	41	48	54	52
Nottingham .	48 .	39	52	52	52
Chester .	47 .	40	49	49	50
Durham .	47 .	40	50	52	49
Stafford .	47 .	36	52	51	52
Surrey .	46 .	40	47	50	47
Kent .	45 .	37	43	50	52
Lancaster .	43 .	34	49	47	45
Middlesex .	39 .	31	42	42	42
LONDON .	38 .	31	40	42	41
England .	49 .	41	51	54	52
Wales .	62 .	49	66	70	63

It appears that large towns in all countries are prejudicial to health, and consequently to the increase of population ; we are borne out in this remark by the fact that on the continent people live for the most part in towns, frequently in large fortified cities, enclosed by walls, and shut in by gates ; few comparatively reside in small villages or in cottages scattered over the country, as is usual with the peasantry in England ; the consequence is the inhabitants in this island enjoy better health, a longer average life, and increase more rapidly than those of almost any other country in Europe.

The difference between town and country, in the question of comparative salubrity, more particularly affects children. Malthus says, “ there certainly seems to be something in great towns, and even in moderate towns, peculiarly unfavourable to the early stages of life, and the part of the community on which the mortality falls seems to indicate that it arises more from the closeness and foulness of the air which may be supposed to be unfavourable to the tender lungs

of children, and the greater confinement which they almost necessarily experience than from the superior degree of luxury and debauchery usually and justly attributed to towns. A married pair, with the best constitutions, who lead the most regular and quiet life, seldom find that their children enjoy the same health in towns as in the country.’’*

There is a very remarkable fact † connected with life and death in Alderney. It is, that there are a greater number of deaths amongst the old than amongst the young, and that between the ages of seventy and eighty there are a greater number of deaths than during any previous ten years of human life.

The following is a comparative statement of deaths of 201 persons out of a population of 1100 in ten years.

From	1	to	10	.	.	36
	10		20	.	.	16
	20		30	.	.	16
	30		40	.	.	16
	40		50	.	.	20
	50		60	.	.	21
	60		70	.	.	15
	70		80	.	.	40
	80		90	.	.	16
	90		100	.	.	5 ——— 201

* Malthus, p. 408. ’

† Inglis’ Channel Islands, vol. ii., p. 179.

In the Island of Sark, on an average of ten years, the mortality is not quite one in one hundred, and in the years 1816 and 1820 there was not one death in a population of five hundred persons.

Susmilch, who wrote about 1740, calculated the proportion of people who died annually in

<i>Great Towns</i>	to be from	1	in	24	to	1	in	28
<i>Moderate Towns</i>	.	1	.	28	.	1	.	31
<i>In the Country</i>	.	1	.	40	.	1	.	50

If this calculation had any reference to England, as in all probability it had, an improvement has taken place of late years to the extent of nearly one-half. Many writers have drawn comparisons between the salubrity of towns and country places. Aristotle, long ago, “exhorted governments to prevent the accumulation of inhabitants in cities,”* and recently, Price, taking the same ground, says, every one knows that the strength of a state consists in the number of the people: the encouragement of popu-

* Malte Brun, I. 553.

lation, therefore, ought to be one of the first objects of policy in every state, and some of the worst enemies of population are the luxury, the licentiousness, and debility, produced and propagated in great cities (p. 201); Susmilch compares cities to a continually raging pestilence, but Malthus thinks they do good by keeping down the population.

The salubrity of a place is estimated by the increase or decrease of the inhabitants, by the proportionate number of deaths that occur among them annually, commonly called the mortality, their probability of life, or the chances of their living for a certain specified length of time, their longevity, and by other circumstances, the knowlege of which is not difficult of attainment, nor very liable to be fallacious when attained. These, when taken together, form a firm matter-of-fact foundation upon which to demonstrate the healthy character or otherwise of a city or district; information which the philosopher cannot furnish from his reasoning, nor the physician from his practice and observation.

From this it appears that there is in the country a much larger proportion of persons under fifteen than in London, 7818 to 6473 ; on the other hand, the numbers from twenty to fifty are much less, or 7592 to 9191 ; while the proportion above eighty is more than twice as great in the country

The preceding table is the result of an actual account of the *living*:—the following is compiled from *obituary* parish registers, and shews that few persons attain to a great age in London, in comparison with the country.

The comparative ages of the people in London and the country prove the superior salubrity of the latter in a very clear manner. The census of 1821 comprised the ages of persons, which is rather an unusual kind of information to obtain, but which is certainly valuable in a statistic point of view, and enables us to mark the state of the community without reference to obituary registers. In a population of 20,000, for example, the ages of the people were as follows :—

		In England.	In London.
Under 5 Years		2982	2613
5 to 10	.	2611	2090
10 15	.	2225	1770
15 20	.	1983	1816
20 30	.	3154	3780
30 40	.	2365	3115
40 50	.	1873 . 6	2296 . 3
50 60	.	1318 . 9	1421 . 6
60 70	.	905 . 6	742 . 4
70 80	.	450 . 1	284 . 9
80 90	.	121	57
90 100	.	10	5 . 3
100 And upwards.		. 3	. 5

The following table presents the probability of life, from birth to old age, as it existed in London and at Northampton towards the end of the last century. (*Price.*)

Age.	In London.	At Northampton.
Birth	2 $\frac{3}{4}$ Years	7 $\frac{3}{4}$ Years,
1	26	30 $\frac{1}{2}$
5	35	41 $\frac{1}{4}$
10	34	40
15	29	36
20	27 $\frac{1}{2}$	33 $\frac{3}{4}$
25	25	31
30	22	28 $\frac{1}{2}$
35	20	25
40	18	22 $\frac{1}{2}$
45	16 $\frac{1}{2}$	20
50	15	17 $\frac{1}{2}$
55	13	15
60	10 $\frac{1}{2}$	12 $\frac{1}{2}$
65	8 $\frac{1}{2}$	10
70	7	8
75	5	6
80	4 $\frac{1}{2}$	4

Thus half the children died before reaching the age of three years in London, and eight years at Northampton; if, however, the child reached the age of five, the chances were equal that it would live 35 years more in the former, and $41\frac{1}{4}$ more in the latter place. The difference in the value of life is there shown to be very considerable, particularly in infancy, between the metropolis and a large country town. These calculations are made from obituary registers only; to have been conclusive, the persons should have been classed according to their ages while living, and an observation made of the average term of years each class attained. Had this been done, there is little doubt but that the probability of life would have been estimated higher. According to the experience of the Equitable Insurance Company, the value of life has been much greater of late years than is indicated by the table given above. It must, however, be admitted that this experience is as likely to have exceeded the reality, as the former calculation to have fallen short

of it, for the results of the Company are those furnished by select lives only.

The following, however, is the actual probability of life proved by the Company's experience.

Age.	Equitable experience.	Northampton calculation.	London calculation.
10 .	52 Years	40 Years	34 Years.
15 .	48 .	36 .	29
20 .	43 $\frac{3}{4}$.	33 $\frac{3}{4}$.	27 $\frac{1}{2}$
25 .	39 $\frac{1}{2}$.	31 .	25
30 .	35 $\frac{1}{2}$.	28 $\frac{1}{2}$.	22
35 .	32 .	25 .	20
40 .	28 $\frac{1}{4}$.	22 $\frac{1}{2}$.	18
45 .	24 $\frac{1}{2}$.	20 .	16 $\frac{1}{2}$
50 .	21 .	17 $\frac{1}{2}$.	15
55 .	18 .	15 .	13
60 .	15 .	12 $\frac{1}{2}$.	10 $\frac{1}{2}$
65 .	12 .	10 .	8 $\frac{1}{2}$
70 .	9 .	8 .	7
75 .	7 .	6 .	5
80 .	4 $\frac{1}{10}$.	4 .	4 $\frac{1}{2}$

Thus it was expected that a person ten years of age, in London, would live twenty-four years longer, and at Northampton thirty years longer; but it was proved by the Insurance Office in the beginning of

the present century, a person of ten years of age, in good health at the time, would probably live forty-two years longer.

We have seen by the mortality that the value of life has been much increased of late years, particularly in London, the introduction of vaccination and other causes of this improvement will be hereafter considered.

The following table, compiled from parish obituary registers, shews the probable duration of life at the last census, 1831; the improvement will appear remarkable, particularly as regards infants, 50 per cent. of whom died in London, a century ago, before reaching the age of three, whereas now 62 per cent. live to the age of five.

Table shewing the proportion of the population dying before the age of five, and the age attained by half of the people in the different counties of England.

	Per centage dying under five.	Years attained by half.
Bedford . . .	30	27
Berks . . .	30	32
Buckingham . . .	31	30
Cambridge . . .	38	21
Chester . . .	36	21
Cornwall . . .	29	34
Cumberland . . .	32	28
Derby . . .	32	26
Devon . . .	32	32
Dorset . . .	28	35
Durham . . .	32	27
Essex . . .	32	27
Gloucester . . .	31	30
Hereford . . .	24	42
Hertford . . .	32	28
Huntingdon . . .	33	27
Kent . . .	35	24
Lancaster . . .	44	12
Leicester . . .	35	26
Lincoln . . .	35	26
Middlesex . . .	37	27
Monmouth . . .	29	33
Norfolk . . .	35	26
Northampton . . .	30	30
Northumberland . . .	28	32
Nottingham . . .	39	20
Oxford . . .	32	31
Rutland . . .	29	40
Salop . . .	29	31
Somerset . . .	31	30
Southampton . . .	31	30
Stafford . . .	39	18
Suffolk . . .	29	32
Surrey . . .	38	34
Sussex . . .	31	27
Warwick . . .	38	21
Westmorland . . .	27	36
Wilts . . .	27	36
Worcester . . .	35	24
York . . .	33	27
LONDON . . .	38	25
Average . . .	$31\frac{2}{3}$	29 $\frac{1}{2}$

Thus the average duration of life in Herefordshire is forty - two years, in London twenty-five ; while in Lancaster, alas, it is only twelve years.

In addition to the foregoing facts, proving the superior salubrity of the country over the town, it is found that there is less longevity in the metropolis, as ascertained by the obituary registers.

OUT OF 10,000 PERSONS BURIED

In London	36	had reached 90,	2	to 100 years.
England	89	.	4	.
Cornwall	137	.	6	.
Wales	211	.	13	.

It would appear from this that the metropolis is even more prejudicial to old age than to infancy ; this however is to be observed, that, as these returns are made up from obituary tables taken from the parish registers, it is possible that many inhabitants retire from London before old age overtakes them, in which case their deaths could not be recorded in the metropolis. It has been observed, on the other hand, that when aged people come into town to reside for a time,

they enjoy better health than they had done in the country ; it is difficult to account for this, unless by supposing that the pure air of the country, so conducive to youthful vigour and robust health, is by its stimulant and exciting properties, less adapted to the infirmity of age, than the mollified diluted atmosphere of the town.

London has thus been shewn to be inferior to the country : first, in the greater annual mortality ; second, in the mortality among infants being larger, in proportion to the population ; third, the ages of the living population showing a deficiency in young and old persons ; fourth, the less average duration of life ; and fifth, there being less longevity in London than in the country.

Although London stands low in point of salubrity in comparison with the provinces of England, it stands very high when compared with most of the continental cities, and even states. With all the boasted advantages of the climate on the Mediterranean shores, the settled salubrious seasons of France, the glowing atmosphere and serene

blue sky of Italy, we find England, and even its gigantic, crowded, almost boundless metropolis, enjoying a greater share of health, and consequently possessing a higher value of life than the inhabitants of almost any foreign city or state in Europe, or perhaps, in the world. It stands with respect to Paris in the scale of health, as forty to thirty-two; to Leghorn as forty to thirty-five; to Naples as forty to twenty-eight and a quarter; to Rome as forty to twenty-four; and to Vienna as forty to twenty-two and a half. The mortality in the latter city being as high as one in twenty-two and a half, or in other words, nearly five per cent of the whole population die annually.

The rate of mortality in Manchester in 1770 was one in twenty-eight, according to the enquiries and calculations of Dr. Percival; whereas at present it is supposed not to exceed one in forty-five. Dr. Enfield states that in 1773 the number of inhabitants of Liverpool was 32,400, and the mortality one in twenty-seven and a quarter; but in 1821, when the population amounted to 141,487, the

mortality was only one in forty-four and four fifths, and, excluding the environs, it was one in forty-one annually.* The mortality in Birmingham from 1810 to 1820 was one in thirty-nine and a half; in Glasgow, one in forty-five and a half; Leeds, one in forty-seven and a half; and at Northampton one in fifty-one.†

So that with the exception of Birmingham the above-mentioned towns enjoyed a higher degree of health than the metropolis, where the mortality, as has already been observed more than once, was found to be one in forty annually. The returns of the American cities are not so satisfactory as we could wish, on account of the large proportion of black population in many of them, among whom the annual mortality is very much greater than among the whites.

The following Table, compiled from various official authorities, shews the annual rate of mortality in some of the principal cities and towns in Europe and America, on the average of the last twenty years.

* Stranger in Liverpool.

† Edin. Review, March 1829.

Northampton	.	.	1 in	51
Leeds	.	.	.	47.6
Glasgow	.	.	.	45.6
Manchester	.	.	.	45
Geneva	.	.	.	43
Liverpool	.	.	.	41
LONDON	.	.	.	40
Boston	.	.	.	40
Birmingham	.	.	.	39.7
Petersburgh	.	.	.	37
Baltimore	.	.	.	36
Leghorn	.	.	.	35
New York	.	.	.	35
Berlin	.	.	.	34
Paris	.	.	.	32.3
Philadelphia	.	.	.	31
Naples	.	.	.	28.2
Brussels	.	.	.	25
Rome	.	.	.	24.7
Amsterdam	.	.	.	24
Vienna	.	.	.	22.5

Average 1 in 35.2

Table shewing the annual mortality in some European states and in America, on an average of the last twenty years.

England	.	.	1 in	52
Netherlands	.	.	.	48
Russia	.	.	.	41
France	.	.	.	39
Austria	.	.	.	38
Prussia	.	.	.	35
America, U. S.	.	.	.	30
Bavaria	.	.	.	29
Sicily	.	.	.	27

Average 1 in 37.6.

By these tables it is evident that the inhabitants of this metropolis have a greater chance of life than those of any of the Continental cities mentioned, except Geneva, and even of any of the foreign states, except the Netherlands and Russia.

Some farther observations on the different rates of mortality will be made afterwards; but it may not be out of place to mention here that the very high standing of many of the manufacturing towns in England arises from the presence of a great number of operatives who repair to the place after entering manhood, and retire from it before old age comes on. Again, in some of the towns on the Mediterranean, the mortality list may be swelled by the circumstance of many invalids repairing thither in the vain hope of their being more salubrious; it is very questionable if they derive much benefit from doing so, whereas it is certain that many who go thither never return.

It is interesting, after comparing the health of the inhabitants of various countries, climes, and cities, to observe the dif-

ference produced on the same class of persons of the same country, under various circumstances of situation and climate. We have a return of the mortality in the British army at home and at various stations abroad, the tale it tells of the fate of our countrymen in the West India settlements, is truly frightful.

Annual mortality among British troops per cent.'

United Kingdom	1.5
Malta	1.5
Gibraltar	2.0
Ionian Islands	2.6
Bengal	5.7
Fort St. George, Madras . . .	4.8
Leeward Islands, West Indies .	11.3
Jamaica and Honduras, ditto .	15.5
Windward Islands, ditto . .	18.3
French Army	1.94

Having thus examined the state of the public health in the metropolis, and compared it with the state in which it formerly was, with that of the rural districts, and lastly, with that of foreign states and cities, we find much matter for serious consideration; we see that, while the tenure of life

enjoyed by the inhabitants of London is better than it formerly was, it is far inferior to that which is held by their neighbours in the provinces; it is seen that the causes which militate against the public health exert their influence chiefly on persons of tender age, and among these the effects are most fatal; if they escape the thickly flying shafts of infantile disease, and struggle through their childhood, it is more than probable that they bear the marks of conflicts in which they have been engaged; and, if the fountain of life be thus poisoned, it is easy to imagine that the stream will be impure the whole length of its course, until it reach the great ocean of eternity; it must be evident, therefore, that the adult natives of the metropolis, not only labour under the ordinary disadvantages of a polluted atmosphere, but suffer from injuries inflicted on their constitution in their early youth; the subject is important to all persons spending a portion of their lives in the metropolis, but more particularly so to its permanent inhabitants.

CHAPTER V.

Inhabitants liable to sickness—Deficiency of Statistic information in England respecting population and mortality—The Registration Act—Prevalence of Epidemics in London—Sweating sickness—Plague—Ague—Dysentery—Small Pox—Fever—Cholera—Influenza—Slow recovery from sickness in London—Deficiency of Hospital Registers of Maladies of Patients—Amount of sickness among East India Company's workmen in London—The same among the weavers in Lancashire and in Glasgow—The same in the Army—Ordinary efficient strength of the House of Commons, and the numbers mustered on four important occasions—Experience of Benefit Societies in reference to amount of sickness—Of the Highland Society—The respiratory and digestive systems chiefly affected in London—Fatal diseases at Carlisle—In the Equitable Society—Table of diseases in Bateman's and University Dispensaries—Rheumatism, Pulmonary Catarrh and Indigestion the prevalent maladies in London—Tables of maladies of patients in North London Hospital—Diseases not of frequent occurrence in London—Tables of duration of sickness in London and Country Hospitals—Great difference in rate of Mortality—Negligence of Government in reference to Health of the People—Suicides in England and on the Continent—Small proportion

in London compared with Paris and Berlin—Great improvements in our criminal code—Small number of executions of late years.

It has always been observed that the inhabitants of cities and towns possess less health and vigour than persons residing in rural districts. From manifold causes the inhabitants of the metropolis, in common with those of other cities, are more subject to ailments than persons residing in the country.

The appearance of the Londoner is peculiar, and it needs little observation to discover that he is more liable to illness than his country neighbour. Few persons come to reside in London who do not in the course of a few months experience the increased liability to bodily ailments which they have acquired; the most robust and vigorous are not unfrequently the first to complain of head-ache or indigestion, and the most hardy often discover in themselves a most unconquerable susceptibility to *colds*. Many persons find that they cannot keep their health in London, even so as to be able to

attend to business, and are therefore obliged to quit it and return to the country.

England is far behind most countries in Europe in statistic returns, and we have hitherto been obliged to refer to societies and to individuals for any information on subjects which, in Sweden, Prussia, and France, deservedly occupy the attention of government.

Within the last two years, however, a statistic society has been established in London, which has already done much good and promises to do much more; the government, too, has at length passed an enactment* to register births, marriages, and deaths, which will lead to correct official returns on the important questions of population, the prevalence or absence of diseases, and mortality, besides establishing, in many instances, titles to property.

We shall have recourse, hereafter, to such official information as can be obtained to shew the truth of the opinion already put forth, that the human frame is less vigorous and more liable to the incursions of disease

* The Registration Act.

in London than out of it, that there are moresick in proportion to the population, and that the mortality is considerably greater.

The metropolis has been, from the earliest periods of history, peculiarly liable to the prevalence of epidemic diseases; a brief notice of some of these, in the order in which they have visited it, will place this part of our subject in a clear point of view.

One of the earliest-mentioned epidemics is that described in Hall's Chronicle as the *sweating sickness*, which, beyond all doubt, was nothing more than *ague* in severe form. Maitland gives this account of it:—"On the 11th day of October, this year, 1486, an unheard of distemper began violently to rage in this city, which, from its symptoms and quality, was denominated the 'sweating sickness,' and carried off the afflicted in twenty-four hours, but those that survived that time generally recovered. This hitherto unknown distemper swept away a great number of citizens, amongst whom was the new mayor, Thomas Hylle, and his immediate successor Sir Wm. Stokker, and one sheriff, so that the city had this year three

mayors and three sheriffs.”* The scourge here described returned occasionally after this time, and spread alarm and destruction wherever it appeared. James I. and Oliver Cromwell fell victims to it.†

The most calamitous visitations, however, that the metropolis ever experienced were those of the *plague*; it is not exactly known when it made its first appearance in London, but it began to show itself every autumn about the close of the sixteenth century; in 1592 it carried off 11,503 persons, and the number seemed to increase toward the beginning of the seventeenth century; for, in the year 1603, 30,567 persons died of it; and in the year 1625, no less than 35,417 were cut off by this terrible disease. From this time it began to subside, till 1660, when there were seldom above twenty deaths caused by it in the year.

The inhabitants began to congratulate themselves on this dire enemy to humanity having taken its leave of them; they re-

* Maitland's London, vol. i., p. 217.

† Caius, on Sweating Sickness.

mained in slumber and repose, and considered themselves safe from its attacks, when it suddenly burst forth among them again with redoubled virulence and fury, and in one year, 1665, swept away no less than 68,596 persons, nearly a fifth part of the whole population of the town; from that time it began to disappear.

The plague was a disease as peculiar in its nature as it was fatal in its effects; the symptoms were many; most persons upon their first invasion perceived a chillness to creep on them, producing a shivering not unlike the cold stage of *ague*; soon after followed horror, shaking, nausea and strong inclination to vomit, a violent and intolerable head-ache next succeeded, hereupon some fell into a frenzy, and others became soporose and stupid; afterwards a fever began to discover itself of a remittent kind; so soon as the fever began to appear a strange faintness seized the patient, followed by most violent palpitation of the heart; *blains* then made their appearance in the milder cases on different parts of the body;

in more severe cases, *buboes*, two, three, or even four in number, occurred, varying in size from that of a hen's egg to that of a halfpenny loaf; their rising was so painful that few could endure the fierce and frequent lancements, and the extreme burnings they felt until the time of suppuration approached; the fever declined as these tumours ripened. In the worst cases, *carbuncles* appeared, pestilential sores, having halos about them of a red flaming colour, some of these were broader than a man's hand; they were of a blue, black, or brown colour, and occurred most frequently on the breast, back, neck, and thighs, and often the delirium subsided on their coming forth. The duration of the disease was from one to three days; in the plague of Athens, according to Thucydides, it extended to seven or ten days. The treatment was almost entirely based on sudorifics. It was supposed to have been imported from Holland, whither it had been transported from Egypt in merchandize. Dr. Hodges, who lived and practised in Watling-street the whole time it raged in

1665, and whose description is here given, was persuaded of the disease having been communicated by contagion. In this visitation, the first cases occurred in St. Giles's; in those of 1625 and 1636, it first appeared in Whitechapel.*

THE NUMBER OF PERSONS WHO DIED OF THE PLAGUE
IN LONDON.

Year.	Died of Plague.	Total Funerals.	Total Christenings.	Population.
1592	11,503	25,886	4277	
1593	10,662	17,844	4021	
1603	30,567	37,294	4784	
1625	35,417	51,758	6983	
1636	10,460	23,359	9522	
1640 to 57	1000 yearly	12,000	8500	
1657 to 64	20 yearly	16,000	10,000	
1665	68,596	97,306	9967	384,000
1666	1998	12,738	8997	
1667	35	15,842	10,938	
1668	14	17,278	11,633	
1669	3	19,432	12,335	
1681	0			
1700	0			663,000

The plague could not be said to have quitted London for a series of years; some seasons were more fatal than others until the great

* Heberden.

destruction produced by it in 1665; and many are of opinion that were it not for the great fire which took place the following year, and destroyed half the town, it would not have been eradicated even now.

The following table will shew what havoc this pestilence made in some parishes of the metropolis in 1665.

	Total Deaths.	By Plague.
Christchurch	653	467
St. Ann, Blackfriars . . .	652	467
All Hallows	500	356
St. Katharine, Coleman Street	299	213
St. Stephen, Coleman Street	560	391
St. Andrew, Holborn . . .	3958	3103
St. Botolph	4926	4051
St. George, Southwark . .	1613	1260
St. Giles, Cripplegate . .	8069	4838
St. Olave, Southwark . . .	4793	2785
St. Saviour, ditto	4235	3446
St. Giles in the Fields . .	4457	3216
St. Magdalen, Bermondsey .	1943	1363
St. Mary, Whitechapel . .	4766	3855
Stepney	8598	6583
St. Martin in the Fields . .	4804	2883
St. Margaret, Westminster .	4710	3472

The plague was considered an epidemic as well as a contagious disease ; its recurrence every year was attributed to the bad construction of the streets, alleys, and lanes, as well as of the houses themselves, all of which were usually in a filthy neglected state, and the habits of the people were in strict accordance with the dirty state of their dwellings; nothing like comfort was known, and luxury, in our estimation of the word, was never dreamt of; we are told, indeed, that the floor of the presence chamber of Queen Elizabeth, in Greenwich palace, instead of being covered with a carpet, was strewn with *hay*.*

London was frequently visited by remittent and intermittent fevers in the sixteenth and seventeenth centuries. Burnet, in his History of the Reformation, says, that in the last years of Queen Mary's reign, intermittent fevers (agues) were so universal and contagious in London, that they raged like a plague. Morton states, that this

* Heberden on the authority of Henzner.

fever was extremely destructive for several years before the great plague year 1665, and that Oliver Cromwell died of it in 1658.

The diseases by which London, in common with all large towns, was almost constantly infested during, and previous to, the seventeenth century, were plague, malignant agues, remittent fevers and dysentery; which diseases, according to the concurring testimony of all military physicians, are the regular endemics of camps, especially in the autumnal season, and are obviously occasioned by the miasmata arising from a soil naturally wet, or rendered so, by the accumulating filth of an army, remains of victuals, excrements, &c. ; now a large town is but an extensive camp, and is liable to be infested with the same diseases as an endemic in camps, unless the precautions of draining and cleanliness be fully adopted; hence the necessity for the construction of drains and common sewers, and the advantages of a flowing stream by which all impurities may be carried off, as well as an abundant

supply of water for the purposes of cleanliness.*

We learn from Sydenham, that after the visitation of the plague in 1665, dysentery prevailed in London to a most alarming extent, and that for thirty successive years seldom less than 2000 persons died of it annually. Sydenham was in extensive practice in London at the time of the great plague, but never after got the better of the jeers of his professional brethren for having decamped when the pestilence began to set in thick around him.

On the last day of the year 1732, happened the highest tide in the river Thames that had been known in the memory of man, and did incredible damage. Some time after, a cold, attended with a fever, raged violently in this city, and for the space of five or six weeks committed great ravages, especially among the aged, whom it cut down like grass, insomuch that the bill of mortality in one week amounted to near quadruple the usual number. This distemper

* Bateman.

was so general, that it was by the best observers computed that not one in six escaped it.*

The *Small-pox* created greater devastation in London, before the discovery of vaccination, than in most other places, the children of the metropolis being naturally more weakly than those in the country; consequently, the introduction of this invaluable substitute was a greater boon to the metropolis than to other parts. From official returns from the Small-pox Hospital, we find that, when the small-pox occurred naturally, one in six died; but, when it took place from inoculation, only one in four hundred fell a sacrifice to it.

At the beginning of the present century an epidemic fever began to spread in the metropolis, and continued to prevail for several years; it was supposed to have been induced by two years of scarcity, 1799 and 1800. The fever and its effects were so manifest that it was deemed expedient to establish a *House of Recovery*, which was

* Maitland's London, p. 546.

opened in February, 1802, and placed under the superintendence of Dr. Bateman. The number of persons attacked by this epidemic was, however, comparatively small ; and some persons doubted the existence of any such disease.

In 1817, this fever shewed itself more generally, and the number of patients admitted to the House of recovery, usually averaging eighty in the year, amounted, in 1817, to seven hundred and sixty. Dr. Marcet reported, that the fevers admitted into Guy's Hospital, in September and October, 1817, compared with those admitted in the same months in 1816, were as fifteen to one. The numbers of fevers admitted into the other London Hospitals in that year were also very great. This epidemic was not very fatal, the deaths amounting to one out of ten, and one out of sixteen, of those attacked.

The most awful visitation that has befallen this country for more than a century and a half has taken place in our own day ; namely, that of the *Asiatic Cholera*. This dreadful disease, most insidious in its invasion, most

rapid in its progress, and most fatal in its attack, spares neither youth nor age, sex nor constitution, rich nor poor. This pestilence originated in India, but when it first shewed itself is not known; it appeared occasionally at the beginning of the present century in that country, and at length, like a restless giant, tired of home, it stalked abroad, and ravaged the utmost limits of the earth.

In the month of August, in 1817, the epidemic began its career in Jessore, the capital of those marshy districts, the Sunderbunds, in Bengal. Jessore is a crowded, filthy place, surrounded by marsh and impenetrable jungle; it is situated about sixty English miles from Calcutta, in a S. E. direction. In a few weeks 10,000 of the inhabitants perished in this single district. In the beginning of September it made its appearance in Calcutta, and, before the end of that month, it spread over the entire of Bengal. It then took a north-westerly direction, and left the populous districts *east* of Murnsserpore untouched. On the sixth

of November it broke out in the Marquess of Hastings's army, then encamped in Bundelcund, on the banks of the Sinde. The army consisted of 10,000 men, and 80,000 camp-followers; of these 5000 perished between the 15th and 20th of November. So sudden was the invasion, that the men dropped in the ranks, and others fell from their horses—the ground was covered with the dying and the dead : 9000 in all having been cut off by it, a retreat was made towards the south-east, and a new position taken on the banks of the Retwah, when the disease disappeared from among the troops. As the pestilence marched north-west, they judiciously placed themselves in its rear.

The pestilence continued to track the roads and rivers, and it spread over the whole Deccan ; 10,000 and 20,000 persons were cut off in single towns, and in Gornk-pore 30,000 persons fell victims to its virulence.

It reached Bombay in August, 1818, and Madras in October following ; in December,

it burst forth, with great fury, in Candy, the capital of Ceylon.

In November, 1819, the disease appeared in the Mauritius, immediately after the arrival of the *Topaz* frigate from Calcutta, several of whose crew had died of it during the voyage.

It spread over the whole of our Indian possessions, it travelled into Siam, and on our troops invading the Burmese empire in 1823, it immediately shewed itself in that territory, though in an *easterly* direction.

Extending through Persia in 1821-22-23, it infected the Russian fleet in the Black Sea, and out of two hundred and sixteen who were seized by it, one hundred and forty-four died. It spread over Syria, Arabia, and to the northern shores of Persia, but did not travel into Europe till 1829, when it penetrated into Russia, through Orenburgh, and across the Wolga. In March 1831, the Cholera travelled with the Russian troops into Poland, and reached Warsaw in April.

The pestilence reached England in August 1831, having entered the country at Sunderland, and thence spread to Gateshead, Shields, and Newcastle, in which places it cut off many persons. In February 1832, it made its appearance on the banks of the Thames, immediately below London, and from that time it began to spread over the metropolis, it subsided however in the summer of that year.

It next made its appearance in the West of England, then in Ireland, and about the same time in France and Spain.

The mountains of Asia and the inland seas of the eastern hemisphere of the globe, had failed to arrest the progress of the dreadful scourge in its western march, but it was supposed that the Atlantic would at last prove a barrier to its destructive strides ; here however, speculation was at fault : it made the tempest and the whirlwind subject to its power, its poisoned arrows spurned the breadth of the vast ocean in their flight, and the pestilence appeared in America, where it caused dreadful havoc, especially in

New Orleans, and other populous cities in the United States.

Thus did this fatal disease rise like a demon bent on destruction; it took its course, not heeding mountain, sea, climate, nor clime; death was its object, man its victim, and the uttermost parts of the world its destination; wherever its cold hand was extended, nature shrunk—the people died; the traveller on the desert, the priest at the altar, the merchant at his trading, the prisoner in his cell, saw the noon-day sun, but before even, were numbered with the dead. Death struggled with time itself, and gnawed the moments that separated him from his victim.

History does not afford an instance of such an universally spreading scourge, so sudden in its attack, rapid in its career, and fatal in its effects. Cordons and Quarantines seemed to have no influence in checking its progress, and those who screened themselves at its approach were often the first that felt its shaft.

The disease generally began by relaxation

of the bowels without pain, the evacuations being colourless, no other symptom was observable ; the second stage was indicated by spasmodic pains of the bowels, and incessant evacuations, cramps of the stomach, vomiting of colourless fluid, cramps in many of the muscles, particularly in the calves of the legs, and at the pit of the stomach, excessive torture and prostration of strength, sinking of the pulse, and shrinking of the body generally, particularly of the features ; a clammy sweat broke out, no urine was passed. In the third stage the body was altogether collapsed and cold, the vomiting, purging, and cramps subsided, the pulse was no longer felt, the breathing was slow and heavy, the voice shrill and weak, the tongue was often cold, and even the breath was chilling ; the vital powers were completely prostrate, and the body became of a deep livid or blue colour, insatiable thirst came on, an occasional evacuation of a chocolate-like fluid took place, and death closed the scene ; the intellects remaining calm and collected to the last.

The disease was uncertain in its duration, it seldom lasted beyond thirty-six hours, and not unfrequently cut the patient off in six, or even less.

On dissection no signs were found sufficient to account for death ; the bowels were slightly discoloured internally, the gall-bladder and ducts were gorged with bile, the urinary bladder was empty, the blood in the veins was of the consistence and appearance of tar, the serum being absent. The writer of these remarks visited the Cholera Hospital of St. George and St. Giles, twice daily, during the prevalence of the Epidemic in London in 1832 ; he also visited all the other Cholera Hospitals in the metropolis occasionally. The treatment of the disease was various ; in some places the patients were bled, in others dependance was placed on saline medicines ; some practitioners employed stimulants, and others the hot bath ; in short, every drug in the *materia medica* was canvassed, in the hope of giving relief to the miserable sufferers.

The most approved plan of treatment was

that invariably adopted in India, the writer not only saw it successful in the Cholera Hospitals, but having had the charge of several patients himself, he employed it with decided success. The plan was to administer ten grains of calomel with two of opium every hour,—for twelve or eighteen hours successively if requisite, and when the coldness was threatening to lay an ample strong mustard poultice over the whole chest and bowels. This mode of treatment generally saved the patient, if he had not already fallen into the collapsed stage before medical aid was procured.

Of those attacked, more than half died. The *name* of this pestilence is very inappropriate, the word cholera is derived from the Greek word *χολη*, bile; whereas the disease, instead of being a bilious disorder, is characterized by a total absence of bile: it obtained the name in India from some of its symptoms resembling those of the cholera of Europe, in which there is a superabundance of bile.

The following is the official return of the cases of cholera which occurred in London in 1832, February, March, and April.

	Cases.	Deaths.
Afloat on the Thames	105	45
Bermondsey	171	79
Bromley	4	3
Brompton	2	2
Bethnal Green	28	18
Brentford	19	11
Camberwell	6	4
Chelsea	29	22
Christchurch	84	35
City	17	8
Deptford	18	12
Lambeth	153	110
Limehouse	36	23
Marylabonne	91	31
Mile End Old Town	2	1
Newington	118	61
Paddington	9	6
Poplar	21	11
Putney	1	1
Radcliff	18	10
Rotherhithe	20	18
Shadwell	21	18
Stepney	2	2
St. Andrew, Holborn	5	3
St. Botolph	16	10
St. George, Hanover Square	15	10
St. George's, East	44	26
St. Giles in the Fields	76	43
St. James	3	3
St. Luke	23	16
St. Martin in the Fields	4	3
St. Pancras	15	12
Southwark, five parishes	809	390
Spital Fields	7	4
Tower	4	3
Wapping	9	7
Westminster	62	33
Whitechapel	76	46
Wandsworth	11	5
Woolwich	4	3
Total	2158	1148

The cases of cholera which had occurred in the country up to the end of May, 1832, including London, were

Cases, 12,837. Deaths, 5211.*

The cholera reappeared in London in the autumns of 1832, 3 and 4, but the only records of the cases which occurred are those imperfect demi-official registers, the Bills of Mortality; it appears by them that in

July, August, and Sept., 1832, there were 2390 deaths.†

.	.	.	.	1833	.	.	.	1233
.	.	.	.	1834	.	.	.	488

The cholera made its appearance in Paris in 1833, and carried off in that year 18,400 persons.‡ Mr. M'Culloch, in his "Statistics of the British Empire," adopts the opinion, on the authority of Sydenham, that this disease was identical with the cholera morbus of the fifteenth century, but this is denied by many writers, and certainly seems very questionable; it was considered by

* Cholera Gazette, official.

† It is probable that more than half of these were *not* cases of Asiatic cholera.

‡ M'Culloch's Statistics.

British physicians to be a new disease in this country ; at least, that it was produced by some unknown atmospherical influence, and that in many instances it spread by contagion.

Before dismissing the subject of epidemics in London, it will be proper to mention the occasional appearance of one of milder form, but nevertheless exceedingly distressing in its nature, and not unfrequently fatal in its effects, viz. *Influenza*. This disease is a catarrh in severe form, accompanied by much fever, sometimes grievously affecting the head, and at other times the chest. This malady spread over the metropolis in the form of an epidemic in the summer of 1831, but did not prove fatal. In the spring of 1833 it returned, and was much more severe in its effects ; it generally induced inflammation of the lungs and air passages, and proved fatal in many instances ; where it did not cause death it left such a degree of languor and debility that many persons were six months before they recovered their usual health and strength.

This complaint returned again in the summer of 1834, but instead of attacking the head or chest, it led to relaxed sore throat, which in some cases was most troublesome to manage; the recoveries were extremely tedious, but that was partly attributed to the unusual heat which prevailed during that season.

The epidemics here described, except the Cholera and Influenza, were for the most part peculiar to London, and afford additional evidence of the liability of the inhabitants to illness; the slow recovery, not only from such affections, but from every species of disease or casualty, is a circumstance always observed in the metropolis; the impure state of the atmosphere is so adverse to the restoration of health that it is usual for convalescents to repair to the country to regain their wonted strength.

The sick in the hospitals are longer in recruiting their strength, and it is generally observed that accidents terminate fatally much more frequently in London than casualties of the same kind do in provincial

hospitals. Injuries of the head are common among the miners in Cornwall, and the operation of *trephining* is had recourse to with safety ; whereas, in London, where the master hand of one of the first surgeons in Europe is employed to save the patient, very indifferent success attends such operations ; the same is observed in reference to injuries of the spine, and others where the nervous system is much disturbed.

Whether it arises from doubt in the minds of the physicians as to the identity of the disease, or from the subject not being considered worthy of notice, it does not appear ; but registers of the different maladies with which patients may be afflicted are not generally kept in the London Hospital ; it is an unfortunate omission, which extinguishes the scintilla of information, instead of allowing it to kindle into flame to enlighten the public mind beyond the walls of the building wherein it is elicited ; it is an injustice to the medical profession, as well as to the public at large, and keeps from posterity its due, namely, the experience of our own time ;

how rich a store of facts should we have to refer to, had registers of the different diseases been regularly kept at all the large and long-established hospitals in the metropolis! Such records would not only have shewn the increase or decrease of different maladies, but would have enabled a person to have discovered, without much trouble, where, and by whom, the best plans of treatment had been pursued.

Mr. Farr observes,* “ To promote health is apparently contrary to the interests of medical men; the public do not seek the shield of medical art against disease, nor call the surgeon till the arrows of death already rankle in the veins. This may be corrected by modifying the present system of medical education, and the manner of remunerating medical men. Public health may be promoted by placing the medical institutions of the country on a liberal scientific basis; by the medical societies co-operating to collect statistical observations, and by medical

* Statistics of British Empire, M'Culloch's.

writers renouncing the notion that a science can be founded on the limited experience of an individual."

The natural sources of information on the question of public health being dry, we must have recourse to such minor streams as come voluntarily to our relief; we have returns from the East India Company of the amount of sickness, and of the mortality, among their men employed in London, and we have a report from the Factory Commissioners, of the sum and duration of sickness among the operatives in Lancashire, and in Glasgow.

Table shewing the amount of sickness, the average duration of each attack, and the mortality among the men employed by the East India Company in London.

Ages.		Average sickness per man per annum.		Average duration of attack of illness.		Mortality per cent. per annum.	
16 to 20		4.02 days		13.96 days			
20	30	4.94	.	18.70	.	0.82	
30	40	5.06	.	22.63	.	1.48	
40	50	5.31	.	23.21	.	2.43	
50	60	7.	.	28.60	.	4.27	
60	70	10.08	.	29.07	.	9.24	
70	80	11.63	.	31.77	.	10.71	
80	90	.	.		.	13.90	

Table shewing the amount of sickness with the average duration of each attack among the male labourers in Lancashire and in Glasgow, as reported by the Factory Commissioners.

LANCASHIRE.			GLASGOW.		
Ages.	Average sickness per man per ann.	Average duration of attack of illness.	Average sickness per man per ann.	Average duration of attack of illness.	
Below 11	2.46 days	13.04 days	1.01 days	3.61 days.	
11 to 16	3.81 .	14.58 .	4.80 .	12.35	
16 21	4.42 .	16.43 .	5.52 .	17.14	
21 26	4.91 .	18.27 .	9.11 .	20.12	
26 31	6.88 .	22.14 .	7.05 .	16.05	
31 36	3.85 .	12.19 .	7.65 .	16.93	
36 41	4.13 .	13.75 .	8.50 .	22.58	
41 46	5.09 .	14.25 .	5.12 .	16.41	
46 51	7.18 .	30.31 .	4.84 .	20.57	
51 56	3.47 .	13.10 .	4.90 .	16.41	
56 61	12.68 .	11.5 .	3.27 .	8.84	

It will be seen that the labourers employed by the East India Company are more healthy than the weavers, particularly those resident in Glasgow; this, perhaps, is not more than might be expected, when we consider that the former are all picked men, and have, comparatively speaking, light work, often in the open air, while the latter are made up of all classes willing to enter the looms, and the very nature of their employment in close

factories, is sufficient to account for the difference; these returns cannot be looked on as indicative of the difference of the salubrity in London and the country, but as merely shewing the ordinary amount of sickness among able-bodied men.

We have no data by which we can calculate the amount of sickness which prevails among the people at large, so that we cannot discover the exact difference between the amount in London and out of it.

The members of the House of Commons do not meet in very full force unless business of great moment is the subject of debate; on certain occasions it is reasonable to suppose that all the members are present except such as are incapacitated by illness; and assuming this to be the case, we may venture to calculate the number of sick among the members while parliament is assembled.

The following table shews the numbers of members of the House of Commons, present and absent, the time and occasion, and the

proportion per cent. absent on four divisions of great interest.

Number present.	Number absent.	Time.	Occasion.	Proportion per cent. absent.*
621	37	March, 1832.	Passing of Reform Act.	6
627	31	Feb., 1835.	Election of Speaker.	5
618	40	—	Voting the Address.	6
562	96	June, 1836.	Irish Church Question.	17

Total number of members, 658.—Average number absent, 8½.

It is more than probable that, on the three first divisions here quoted, many members were present who were labouring under illness, and might have been excused, but that an imperative sense of duty dragged them to their post; it is also to be observed that among the members there are always many labouring under the infirmities of *age*.

It appears, from official returns, that in the British army the average proportion of men sick is four per cent.

We are indebted to those humble institutions, *Benefit Societies*, for some information relative to the present subject. By a return made to the House of Commons in 1827,

* Omitting fractions.

by Messrs. Finlaison and Davies, in reference to these Societies, it appeared that the members experienced the following terms of illness :

Under 50	.	.	11 days per annum.
From 50 to 60	.	21	.
From 60 to 70	.	43	.

This amount of sickness is very great, and can only be accounted for by supposing that, in very many instances, the Societies were burdened by persons who preferred being *idle on half*, to being *occupied on full*, wages.

By the Report of the Highland Society, it appears that, in that part of the country, the amount of sickness which prevails among the people is as follows :

Under 50	.	.	$5\frac{1}{4}$ days per annum.
From 50 to 60	.	13	.
From 60 to 70	.	$38\frac{1}{2}$	.

We come next to the consideration of *what* diseases are most prevalent in London. They are chiefly those of the *Respiratory* and *Digestive* systems, *not* of the *Sanguineous*.

The stomach is one of the first organs that shews any indication of the general machinery being out of order, and as it is the first to suffer, it comes very frequently under the management of the physician ; a large proportion of the *cases* medical men meet with in their practice in London are disorders of the stomach ; indigestion, heart-burn, spasms, flatulence, make up a large chapter in London nosology ; and it is very common to hear learned disquisitions on this important organ, and the maladies to which it is subject from *bon vivans* assembled in the very act of undermining its natural vigour ; books and treatises on diet and digestion suited to the *tastes* of all readers are abundantly supplied, and the function of digestion is studied as a science by all classes of persons in the metropolis.

The Carlisle Tables of the duration and value of life have been already referred to. Not only has much valuable information been obtained from the observations made there on that department of the subject, but Dr. Heysham published the cause of

death in 1600 cases which occurred in the course of eight years, out of a population of 8000 ; and this table presents a fair view of the extent and prevalence of diseases at Carlisle, at the time the registers were kept. We have also an account, published a few years ago, of the cause of death in 4000 persons whose lives had been assured by the Equitable Society, in London. This report is not useful in a general point of view, inasmuch as it presents the cause of death in persons in various situations, and resident in different parts of the country, for the most part belonging to the more intellectual classes of the community, and being, in every instance, picked lives,—free from even the predisposition to any disease likely to shorten life ; it consequently fails to give a correct view of the maladies of the people. For instance, among the number, one death only occurred from small-pox, and only eight per cent. from consumption ; whereas that scourge carries off 20 or 25 per cent. of the people. On the other hand, the proportions of Apoplexies, Palsies, and Dropsies, are unusually large. c 2

Table of 4095 Fatal Diseases happening among persons assured
by the Equitable Society; from 1801 to 1832.

DISEASES.

AGES.

I. Brain & Spinal Marrow.	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80&c.	Total.
Inflammation of the brain	1	4	15	16	13	12	2	1	64
Water on the brain			1	3	4	1			9
Convulsion fits				4	1	3			8
Epilepsy		1	2	8	2	2	4		19
Suicide		1	2	6	15	5			29
Apoplexy	1	4	25	56	129	169	86	16	486
Palsy		1	5	15	47	84	74	9	235
II. Respiratory Organs.									
Quinsy				1	1	1			3
Inflammation of the lungs		2	12	12	41	56	45	17	185
..... chest	1	1	1	8	11	21	12	4	59
Pleuritis				1	1	2			4
Dropsy of the chest		1	3	23	52	59	42	3	183
Consumption	1	23	63	83	81	66	18	1	339
Asthma				2	20	26	22	4	74
III. Organs of Circulation.									
Aneurism			1	2			1		4
Angina Pectoris			8	16	15	47	26	3	145
Rupture of blood vessel	1		12	19	19	22	9		82
IV. Organs of Digestion.									
Inflammation of the bowels ...	2	2	14	20	26	44	16	2	126
Disease of stomach & digestive } organs.		2	9	12	28	31	22	2	106
..... liver		2	8	37	54	49	23	2	175
Dysentery			1	3	5	11	11	3	34
V. Skin & Intestinal Canal.									
Cholera			2	5	5	9	5	1	27
Fevers		14	47	88	97	99	48	8	401
Small pox								1	1
Erysipelas		1	2	7	6	7	3		26
VI. Genital & Urinary Organs.									
Diabetes				3	2	1	1	1	8
Stone					1	2	7	2	12
Disease of bladder & urinary } passages			3	9	25	44	41	6	128
Child-birth			2	2					4
VII. Of Uncertain Seat.									
Gout			2	6	8	14	7	1	38
Mortification				2	12	14	12	6	46
Cancer			2	5	14	15	1	3	43
Atrophy			4	7	11	15	6		43
Natural decay and old age					10	128	241	187	566
Dropsy	1		10	39	67	83	50	7	257
Disorders not properly defined			9	11	20	27	12		79
VIII. External Violence.									
Murdered				1	1		1		3
Slain in war	1	1	1	1					4
Accidents		7		11	9	4	5	4	40
	12	67	266	544	883	1173	856	294	4095

Dr. Bateman who had the superintendence of the Public Dispensary, has published a treatise on the diseases of London, based on the quarterly reports of this Institution, from 1804 to 1817. He specifies the diseases, and his work is an exceedingly good account of the general state of the health of the people for these years.

There is not a great difference between the reports of one year and another, one being a fair example of the whole. The writer of these observations was House Surgeon to the London University Dispensary, from its establishment in 1828 to its merging in the North London Hospital in Nov. 1834, during that time from twelve to eighteen hundred patients were admitted annually; registers of the diseases of most of the physicians' patients were kept, but not of all. Here, as in Dr. Bateman's Dispensary, the report of one year agreed very nearly with those of others.

In order, therefore, to follow up the enquiry of the state of health of the metropolis, through the data furnished by these

two Institutions. The report of one year of each is here given, which, to a certain extent, will enable a person to see which are the prevalent diseases in London.

It is unfortunate that medical writers do not use the same terms to designate particular maladies ; this is owing to our having no standard system of nosology, and consequently no uniform nomenclature, and to this defect is to be attributed the discordance that occasionally appears in the lists of diseases at different institutions.

Proportions of Diseases in Bateman's Dispensary in 1815-16,
and University Dispensary in 1829.

	B.	U.D.		B.	U.D.
Abortus	8	2	Hysteria	26	2
Amenorrhœa	24	19	Hysteritis	3	
Anasarca	23	6	Hydrops Ovarii	4	1
Aneurism		1	Icterus	13	3
Angina Pectoris		3	Impetigo	13	3
Apoplexia	3	1	Leucorrhœa	39	3
Arthritis Rheumatica	5		Lepa	10	4
Ascites		2	Lichen	9	
Asthénia	85	3	Linguitis		1
Asthma and Dyspnœa	9	27	Lumbago et Sciatica	7	13
Bronchitis		12	Marasmus	35	1
Bronchocele		2	Menorrhagia	37	9
Cachexia		4	Melancholia	3	
Cancer		1	Nephralgia	26	
Carditis	1	2	Nephritis	1	1
Catarrhus	418	35	Obesitas		1
——Chronicus et Tussis	175	69	Ophthalmia	1	6
Cephalœa	95	28	Otitis		1
Cholera	16		Palpitatio	9	2
Chorea	6	1	Paralysis	9	9
Colica	7	6	Peritonitis	10	5
Constipatio	8	6	Pertussis	21	2
Cynanche Parotidœa		2	Phrenitis		1
———Trachealis		3	Pleuritis	12	7
———Tonsillaris	39	18	Phthisis et Hæmoptysis	179	10
Diabetes	2		Pleurodynia		6
Diarrhœa	104	14	Pneumonia	47	15
Dysenteria	122	4	Phlegmon		2
Dyspepsia et Pyrosis	116	63	Polypus		1
Dysuria et Isehuria	6	4	Podagra		3
Ecthyma	7	5	Porrigio	30	16
Eczema	6		Prurigo	9	
Enterodynia	64		Psoriasis	14	5
Epilepsia	14	9	Poisoned		1
Epistaxis	1	2	Rachitis		1
Erythema	5		Rheumatismus	193	48
Eruptions, Anomalous		5	Rubeola	28	6
Febris	166	38	Rupia	7	
——Puerperalis	22		Scabies	41	13
Gastritis et Enteritis		2	Serophula	8	7
Gastrodynia	72	9	Scarlatina	45	6
Hæmatemesis	4	6	Seorbutus		1
Hæmaturia	3		Splenitis		3
Hæmoptysis		1	Strophulus	2	
Hæmorrhoids	10	4	Tabes Mesenterica		1
Hemicrania	1		Tetanus	1	
Hepatitis	10	11	Tic Doloureux		2
Herpes	2	3	Variola	20	2
Hydrocephalus	9	3	Varicella	3	1
Hydrops	23		Vermes	13	15
Hypertrophia Cordis		3	Vertigo	28	19
Hypochondriasis	3	3	Vomitus	7	

N.B. The total number of patients at the University Dispensary in 1829 was 1597; 1031 of these were physicians' patients, and the remaining 596 surgical and midwifery.

The foregoing table contains the report of 699 of the physicians' cases, the remaining 302 were not set down.

It will be seen by the table that the six prevailing diseases in Dr. Bateman's list are

Catarrh	Consumption	Dysentery
Rheumatism	Fever	Indigestion

And at the University Dispensary

Catarrh	Rheumatism	Asthma
Indigestion	Fever	Head-ache

In four of the six the lists agree, and the difference might be accounted for by various circumstances. The different situation of the two Dispensaries,* the extent of their relief, the difference of time in which the records were kept, and the want of a common nomenclature.

The most common ailment is *Catarrh*, or

* Bateman's Dispensary was situated in Gray's Inn Lane, that of the University, in George-street, Euston-square.

common cold ; in this respect the metropolis differs little from other places, except that in London it affects the respiratory organs more commonly than it does elsewhere, inducing difficulty of breathing, and habitual cough, known under the technical name of *Bronchitis* ; thence it often leads to consumption and other diseases of the chest, and these complaints, according to Bateman, have materially increased of late years in London.

According to the list of Bateman, *Rheumatism* stands next in rotation. This disease generally appears in the metropolis in the *Chronic* form, and not unfrequently affects the nerves, running into Neuralgia, or Tic Doloieux ; whereas in the country Rheumatism is very apt to appear in the acute form, accompanied by a high degree of fever, and affects the muscles and membranes covering the joints, rather than the nerves.

Indigestion seems the next most prevalent complaint, indeed, it comes before Rheumatism, in the University Dispensary list. It

is a malady that few persons escape ; if not a serious evil, it is an exceedingly troublesome one ; it is so general that carbonate of soda is kept in every house, and taken as an antidote to the disorder ; it seems to affect persons of all ranks and professions, neither sex is exempt, and whether a person leads an active life, or is of sedentary habits, a long period seldom elapses without his being more or less inconvenienced by it. Persons formerly resident in the country experience the effects of the complaint before they have long taken up their abode in London. Debility of the stomach, indicated by an incapacity of digesting an ordinary meal, Acidity, Heart-burn, Sour Eructations and Spasms, come on in painful succession, and harass the body, disturb the mind, and banish sleep ; the general health is impaired, and recourse is had to medical aid.

As has been just now mentioned, it has of late years become fashionable to have indigestion, and to make the complaint the subject of conversation ; and, as is commonly

the case when a thing is in vogue, it carries all before it, so it has been very usual to refer all irregularities of the system to indigestion. This propensity was greatly encouraged, if not engendered, by the promulgation of the quaint, but not the less valuable doctrines, of Abernethy.

According to Bateman's list, *Consumption* stands third amongst the most prevalent diseases. This is merely an indication of the extent of the relief afforded to the poor, for it is well known that consumption is the most fatal of all diseases; the unfortunate victims are unable to go to the dispensary, but are long on a bed of sickness, and the more the sick poor are visited at their own habitations, the greater number of consumptive cases will be met with, and as a larger proportion of persons were visited at their own homes at Bateman's dispensary, his list presents a greater number of such cases.

The havoc that this disease makes, one death in every four being occasioned by it, has been already mentioned in the preceding chapter. *Fever* is the next most common

malady in London, as indicated by the records given above. It occurs at all seasons of the year, and generally spreads as an epidemic : so prevalent is it that the town may be said scarcely ever to be free from it.

It prevailed to a considerable extent at the commencement of the present century, as has been already observed, and was the cause of Dr. Bateman's dispensary, from which the above records were taken, being established. The prevalence of fever, it should be observed, is chiefly, if not entirely, amongst the lowest classes ; and when it is considered what a dense population of this description there is in the metropolis, how close and filthy are their haunts, it is almost surprising that this and other such epidemics are not more prevalent and more fatal than they are.

The diseases that are more common now than they formerly were are those dependant on disordered action of the brain or nerves : this observation is applicable to the country generally, but to the metropolis in particular : applicable, however, to the rich rather than the

poorer classes, the increase of luxuries, the gradual abandonment of nature's laws, and living by artificial rules, are the obvious reasons ; and though, as has just been said, the rich must be more likely to suffer, the poor closely follow ; thus asthma and head-ache, two complaints caused very frequently, if not entirely, by derangement of the nervous system, stand forth as being prevalent among the patients attending the University Dispensary in 1829 ; the latter was also a malady of common occurrence at Bateman's Dispensary.

Nervous head-ache is decidedly prevalent in the metropolis ; it occurs chiefly in middle aged persons, but no age seems exempt from it ; it shows itself occasionally in an intermittent form, returning at certain periods, and lasting a certain time ; sometimes it is very severe, and seriously disturbs the sight and hearing. This painful affection is not unfrequently the forerunner of the still more distressing malady paralysis. It requires no extraordinary powers of discernment to discover that not only

these nervous affections, but others, such as St. Vitus's dance and Hysterics are more common in London than in the country. Unfortunately, the physiology of the nervous system is far from being understood, although the attention of Magendie in France, Gmellin and Tiedemann in Germany, and Sir C. Bell in England, have been assiduously applied to the subject; and if the apparatus and its operation be not understood in a state of health, how much more ignorant must we be of it in its disordered state! If we know little of the *physiology* of the nervous system; of its *pathology*, we must necessarily know less.

This defect is felt in all its force in a place where nervous complaints are common; and where strangers visit London they frequently remark how many pallid, paralytic, and other shattered frames they meet in the streets.

Spasmodic asthma is very common, and frequently exists without the patient being aware that he has any thing more than pulmonary catarrh; the difficulty of breathing becomes habitual in many persons, and it is

not easy to afford them relief; often the two diseases are mistaken, and the proper means not adopted for their cure.

Dropsies of all descriptions are disorders of frequent occurrence in London. This species of malady occurs under the form of *Anasarca*, or general dropsy of the body and integuments, or in particular organs; and whether it take place generally or partially, it is indicative of an enfeebled state of the nervous, and proximately of the absorbent, systems.

The most common kind of dropsy is that of the feet and legs, which frequently occurs in people otherwise in good health.

Perhaps there is not a more striking instance of the want of tone of the nervous system, and of its effects, than that which is often observed in the metropolis in young females at the period of puberty; it is very common for such persons to be under medical treatment for several months, nay, even years, without a regularity of habit being established: the usual complaints are severe head-ache, cough or indigestion, and not unfrequently the whole combined with a

pale, bloodless, inanimate countenance. The alterative, depletive, and tonic plans of treatment are tried in turn with little or no good effect, often the person falls into consumption, or, what is nearly as bad, into a delicate, low, nervous condition, in which she remains for life. Such cases are very common in London, certainly much more so than in the country, and afford painful proofs of the injurious effects of residence in town. In the afternoon of life, females again experience the effects of a languid nervous system, and suffer considerably more than their more healthy friends in the provinces.

Besides the complaints enumerated, originating in a disordered state of the nervous system, the nerves themselves are frequently the seat of most acute suffering from the malady *Neuralgia* or *Tic Doloieux*, which painful affection is supposed by some to be caused by rheumatic inflammation of the sheaths of these unintelligible functionaries.

This complaint is common in the metropolis, and seems to be more prevalent among the upper than the lower classes. It gene-

rally sets medical aid at defiance, and seldom gives way even to the most powerful agents ; Prussic acid, Morphia (the sedative principle of opium), Arsenic, Iodine, Iron, Colchicum, Veratria (the sedative principle of hellebore), and Creosote (a substance found in the destructive distillation of wood), have all been used for its cure, but with indifferent success. The nerves have been *cut*, with a view to reducing the disease, without however affording the least relief to the sufferer. An eminent physician of the metropolis died of this excruciating malady a few years since, and the Marquess of Anglesea is a living martyr to it. In some cases, which occurred at the University dispensary, the Colchicum and the Morphia, in large doses, were found beneficial and occasionally successful in subduing the pain. Dr. Elliotson has succeeded in curing it by very large doses of Carbonate of iron.

Scrophula, or King's evil, is supposed by some writers to be generated by a vitiated state of the three springs of life, *air*, *diet*, and *exercise*.

Dr. Macartney, of Trinity College, Dublin,

declares he could produce the disease in any child by sending it to one of those hot-beds of disease, Infant Schools : the result of the observations made in London, where the children of both rich and poor are subjected more or less to the same debilitating influence, must lead a person to the same conclusion : the complaint is prevalent in the metropolis, and of late years, a hospital has been erected at Margate for the reception of scrophulous patients sent from London.

In speaking of the rise and fall of the value of life in the last chapter, allusion was made to the increase of two diseases, cognizance of which cannot be well taken in hospitals, or even in reference to one of them during the life of the person, namely, Apoplexy and Consumption. The former often kills its victim at a blow, consequently its prevalence cannot be well marked except in the obituary registers.

The bills of mortality, imperfect as they are, must be consulted : and by them it appears that in

1700 out of 21,000 deaths 157 occurred from apoplexy.

1800 . 19,000 . 300

Again, Consumptions are not seen in hospitals so much as in private residences ; they are objected to at very many of the former, on account of the protracted nature of the disease, and the hopelessness of the person being recovered ; we must therefore refer to other sources for information of the prevalence of the disease. It is computed, as stated before, that the proportion of deaths caused by it is from 20 to 25 per cent. of the whole population ; and Dr. Clark is of opinion that, after deducting the deaths in early infancy, a *third part* of the mortality in this country arises from tubercular or scrophulous diseases.

It has been already observed that correct registers of the diseases of the patients are not kept in the metropolitan hospitals. This remark, however, does not apply to the North London Hospital established in 1833 ; in this institution, registers and records of the cases are strictly preserved of the in. and of a large number of the out, patients.

During eighteen months previous to the writing of these observations* 772 in-pa-

* December, 1836.

tients came under the care of the physicians, about 800 under that of the surgeons, and there were admitted between 1500 and 1600 out-patients.

It is unnecessary to make allusion to the surgical cases, as they differ little from those which occur in all hospitals. The medical list, however, affords some useful information, touching the character of the diseases of London.

This account, it must be admitted, cannot be received as shewing the comparative prevalence of particular maladies; for the size of the hospital (containing a hundred and thirty beds) rendered it expedient to refuse admission to many cases decidedly incurable, and others which were likely to remain long in the Institution. This will account for the small proportion of consumptions among the patients.

The following is a table of the cases which occurred, shewing also in what proportion the disease terminated fatally in the hospital.

	Cases.	Deaths.
Abscess of liver	1	1
Ædema phlogistica	1	1
Amaurosis	1	
Amenorrhœa	11	
—— phlogistica	1	
Anasarca	7	3
—— phlogistica	5	1
Anœmia	13	
Aneurisma aortæ	3	1
—— innominatæ	1	
Angina pectoris	2	1
Aortitis chronica	1	
Apoplexia	5	2
Arthritis chronica	3	
Ascites	10	2
Asthma	8	3
Bronchitis acuta	1	1
—— chronica	44	10
—— & hepatitis	1	1
—— asthenica	2	
Calculus Renalis	1	
Carcinoma Uteri	1	
Caries Ossium Capitis . . .	1	
Catarrhus	1	
Cephalalgia	6	
—— Phlogistica	5	
Chlorosis	1	
Chorea	13	
— Anomalous	1	

	Cases.	Deaths.
Colica Pictonum . . .	12	
Cordis Morbus . . .	12	5
Cynanche Maligna . . .	2	
—— Follicularis . . .	1	
—— Syphilitica . . .	1	1
—— Tonsillaris . . .	2	
Delirium	5	1
—— Tremens	2	
Diabetes	6	
Diarrhœa	3	
Dysmenorrhœa	1	
Dyspepsia	23	
—— Mental	1	
Ecthyma Cacheticum . . .	3	
—— Syphiliticum.	3	
Eczema	5	
—— Impetiginodes	1	
Encephalitis	1	
Epilepsia	18	1
—— & Paralysis	1	
Epistaxis	1	
Eruptio Anomala	1	
—— Syphilitica	1	
Erythema	1	
—— Nodosum	2	
Erysipelas	7	1
Febris Continua :	24	6
—— Intermittens	7	

	Cases.	Deaths.
Fungus Hæmatodes	2	1
Ganglii Absorb. Inflam. . . .	1	1
Gastritis	8	1
Gastro-Euteritis	2	1
Gastrodynia	13	
Gibbositas	1	
Glanders	1	
Gonorrhœa	3	
Head, Anomalous Affection of,	1	
Hæmorrhagia Intestinalis . . .	1	
Hæmorrhoids	1	
Hæmoptysis	4	
Hæmatemesis	3	
——— Phlogistica	1	
Hemicrania Phlogistica	1	
Hemiplegia	9	1
Herpes Phlyctenodes	1	
Hepatitis	15	3
Hepatic derangement	1	
Hydrops	2	1
—— Phlogisticus	3	1
Hydro-thorax	1	
Hypertrophia Cordis	6	1
Hypochondriasis	1	
Hysteria	27	1
—— & Paralysis	1	
Hysteritis Chronica	2	
Icterus	5	
Intoxication	1	1

	Cases.	Deaths.
Impetigo	2	
Influenza	2	
Intumescencia Hepatis . .	1	1
Irritable bowels . . .	1	
Laryngitis	2	
Lepra	4	
— Alphoides	1	
— Syphilitica	8	
Leucorrhœa	1	
Maladé Imaginaire . . .	1	
Mania	2	
Memb. Cell. Inflammatio . .	1	
Menorrhagia	4	
Monomania	1	
Nephritis	3	
— Chronica	2	
Nervousness, Great . . .	1	
Neuralgia	2	
— & Hysteria	1	
Obstipatio	1	
Ovarian Tumour	1	
Palpitatio	2	
Paralysis	4	
— a Plumbo	3	
— of muscles of the eye . .	1	
Paraplegia	7	
Peri-Carditis Chronica . .	6	

	Cases.	Deaths.
Periostitis Gonorrhœalis	1	
Peritonitis	6	
Peripneumonia	4	1
— & Erysipelas	1	
Phrenitis	6	1
— sub	1	
Phthisis	31	14
— Dyspeptica	4	1
Physconia	5	
Pleuritis	4	
Pleurodynia	1	
Pneumonia	4	3
Podagra	6	
Poison, Arsenic	1	.
— Laudanum	5	1
— Lead	1	
— Oxalic Acid	3	
— Sulphúric Acid	3	3
— Suspected	1	
Porrigo Furfurans	1	
— Scutulata	1	
Prolapsus Uteri	1	
Prurigo Formicans	2	
Psoriasis	3	
— Eczematodes	2	
— Syphilitica	1	
Purpura	6	1
Rheumatismus Acutus	30	1
— Chronicus	86	
— & Ecthyma	1	

	Cases.	Deaths.
Rheumatismus & Pericarditis	4	
— Gonorrhœalis	4	
— & Roseola	1	
Rubeola	1	
Rupture of Stomach . . .	1	1
Scabies	5	
Scarlatina	7	
Scirrhus	3	1
Sciatica	2	
Scrophula	5	1
Spinal Irritation . . .	1	
Sycosis	1	
Syphilis	2	
— Secondary	7	
Tænia	1	
Tracheitis & Laryngitis .	1	
Tonsillitis	4	
Trismus	1	
Tumour	1	
Ulceration of bowels . .	1	1
Urticaria	1	
Uteri Morbus	1	
Variola	1	
Vermes	1	
Vertigo	1	
Vomitus	1	
Total	772	85

The Surgical cases were about the same in number, and the deaths in proportion. Thirty deaths occurred besides, from accidents.

The six most prevalent diseases in the foregoing list are Rheumatism, Pulmonary Catarrh, Consumption, Hysteria, Fever, and Indigestion; which, after making allowance for the difference of terms employed, corresponds to a considerable extent with those in Bateman's and the University Dispensary lists; and this is more than might reasonably be expected, for the patients that apply at a Dispensary for relief are seldom labouring under so severe a form of disease as those seeking admission to an Hospital. The writer of these observations has been attached to the North London Hospital from the period of its opening, and his duty has been to prescribe for about a moiety of the physicians' out-patients.

The following is a list of the cases which came under his care during the eighteen months already alluded to; and it is necessary to mention that the want of an uniform nomenclature indicates a discordance between this list and those already given, which does not actually exist.

N.B. Four died while on the out-patient list, and ten were received into the hospital wards.

NORTH LONDON HOSPITAL.

Out-patients seen by J. H., from Aug. 1, 1835, to Dec. 1, 1836.

Ædema	1	Linguitis	1
Amenorrhœa	4	Leucorrhœa	1
Aneurisma Aortæ	1	Lumbago	2
Aphonia	1	Marasmus	3
Ascarides	3	Melancholia	1
Asthma	11	Morbus Cordis	1
Bronchitis Chronica	27	Nephritis	2
———— & Asthma	1	Neuralgia faciei	1
Cachexia	6	Otitis and Amaurosis	1
Catarrhus	13	Palpitatio	1
Cephalœa	9	Paralysis	7
Colica Pictonum	3	———— a plumbo	1
Constipatio	3	Pericarditis	1
Cynanche Tonsillaris	4	Phthisis	16
Cystitis	1	Pityriasis	1
Effusion on brain	1	Plethora	1
Epilepsia	4	Pleurodynia	2
Erythema	1	Pneumonia	6
Erysipelas	4	Podagra	6
Eruptio Anomala	1	Porrigio Scutulata	4
Febricula	4	———— decalvans	1
Febris	1	Prurigo formicans	2
Furunculi	2	———— Senilis	1
Delirium Tremens	2	Psoriasis	6
Diarrhœa	5	Rheumatismus Acutus	1
Dysmenorrhœa	16	———— Chronicus	29
Dyspepsia	26	———— & Pericarditis	1
Dyspnœa Spasmodica	1	Rancitas	1
Dysuria	2	Scabies	2
Gastralgia	2	Sciatica	2
Gastro-Enteritis	7	Scrophula	2
Hemiplegia	3	Spasmi Musculorum	1
Hepatitis	13	———— Ventriculi	1
———— & Anasarca	1	Sycosis	1
Hydro-thorax	1	Syphilis	3
Hypertrophia Cordis	1	———— Secondary	3
Hysteria	3	Toenia	2
Hæmoptysis	3	Tussis	1
Icterus	2	Variola	1
Impetigo	1	Vermes	2
Influenza	18	Vertigo	11
Ischuria Renalis	1	Blanks, or Anoma-)	22
———— & Rheumatismus	1	lous Diseases)	
Languor	3		
Lepra	2		
———— Alphoides	1	Total	376

The six prevailing maladies, according to this table, are Rheumatism, Pulmonary Catarrh, Indigestion, Influenza, Consumption, and Dysmenorrhœa.

Thus, in five cases out of six, this account agrees with that of the in-patients. It may be remarked that the prevalence of Rheumatism is evidence of the low standard of health possessed by the inhabitants of the metropolis, particularly by the lower classes; for this disease is more apt to display itself in the spare debilitated habit than in the robust and vigorous; and where poverty is superadded to a constitution already below par, it is not too much to expect that Rheumatism would shew itself, and such is found to be the fact, as shewn by the preceding tables.

Pulmonary Catarrh is a very prevalent malady in London, and often terminates fatally: according to Bateman's, and the University Dispensary lists, it was more frequently met with than Rhenmatism, and to this disease no doubt is partly attributed the greater mortality in London than in the country.

After enumerating the complaints which are most common in London, it may be proper to observe that Inflammatory diseases, such as Brain fever, Pleurisy, Inflammation of the bowels, Inflammatory fever, Phlegmonous affections, and all those originating in Plethora, or increased action of the heart and arteries, are of rare occurrence in the metropolis.

So *Chronic* complaints prevail in greater proportion in London, and *Acute* diseases in the country.

The prevalence of those complaints occasioned by a debility of the system, by a want of tone and vigour in the constitution, rather than those induced by an excess of animal health and strength, is a pretty strong proof, if any were wanting, of the standard of health being far lower in London than in the country.

Finally, if we compare the average duration of time patients remain in the London and in the Provincial Hospitals, and the amount of mortality in both, we shall have conclusive evidence of the country in-

valid having greater bodily vigour, and consequently a greater chance for his life, than the patient in the Metropolitan Hospital : with respect to the *time*, the advantages in London seem greater than they really are, for it often happens that, from the great number of applications for admission, patients are discharged as cured, but still in such a weakly state that, were they in a country hospital, they would have been retained another week before they would have been dismissed.

Table shewing the numbers of in-patients admitted to various hospitals in London and the Country, the average time each patient remained in the hospital, and deaths per cent. among the patients.

<i>London Hospitals.</i>	Average number in the hospital at a time.	Number admitted per annum.	Days each patient remained. (Average).	Deaths per cent.
Bartholomew's.....	483	5164	34	7.6
Guy's.....	480	3395	52	8.0
St. Thomas's.....	398	3000	48	8.7
Westminster.....	100	796	46	
Middlesex.....	180	1732	38	9.5
London.....	300	2517	43	10.3
St. George's.....	250	2133	43	10.6
North London.....	120	1156	37	8
<i>Fourteen Paris Hospitals</i>	3947	47166	35	12
<i>Provincial Hospitals. . .</i>				
Leicester	60	898	28	3.25
Bath	39	503	29	7
Chester	62	599	32	3.5
Cambridge	60	775	33	2.5
Birmingham	141	1556	33	4.33
Manchester	143	1549	34	5.6
Leeds	115	1385	37	4
Derby	61	590	37	3
Salisbury	88	955	38	2.5
Salop	81	756	40	2.85
Winchester	77	657	41	2.5
Northampton	93	827	42	2.5
Bristol	195	1483	43	9.5
Stafford	65	524	44	2.4
Bury	34	250	48	2.8
Nottingham	67	522	49	4.33
Canterbury	57	444	47	4.25
Hereford	33	300	42	4
Worcester	96	680	52	4.5
Exeter	182	1000	66	4
Gloucester	147	543	102	6
Cornwall	23	165	51	1.6

It will be seen by this table,* that, although the difference between the duration of time persons remain in hospitals in London and in the country is not very great, forty-three days and a half to forty, yet the mortality is more than double, being 9.2 per cent. among the patients in the former, and only 4 per cent. among those in the provincial hospitals. This difference is very considerable, and shews that, in addition to the mortality being greater in proportion to the population generally, it is fearfully increased among the sick in London; or, in other words, the invalid in a provincial hospital has more than double the chance of recovery that a patient has in London.

The success which attends Surgeons in Cornwall, in their treatment of men severely wounded in the mines, is very remarkable.

The most violent injuries befall the men in the course of their work, such as fractures of all kinds, lacerations, contusions, and all the train of evils attending the premature explosions in rocks, when not unfrequently

* From M'Culloch's Statistics: Paper by Mr. Farr.

the skull is crushed, and the limbs are blown to a distance from the body, and yet the number of lives that are lost after such accidents are surprizingly few. The writer of these pages being a native of that county, the first years of his professional career were spent in the midst of what is called "Mine Practice," and he can speak with confidence as to the facts here stated.

If governments can do little by direct enactments for the diminution of sickness, it is nevertheless their duty to determine by statistical enumerations the actual state of health, and the extent to which it is deteriorated under different circumstances.

Returns of the diseases and deaths in the army and navy, and all bodies of men employed in the public service, should be made annually; and this, with the results of the general registration, would improve public health, by showing so distinctly the connection between diseases, and their natural causes, that men would either avoid, or obviate, the circumstances destructive to health.

Almost all classes of the people of this

country are profoundly ignorant of the physiological laws which regulate their own existence. Health may consequently be improved, by making a knowledge of the nature of the human organization, and of the external agents by which it is influenced, an elementary part of the national education.

It has been shown that external agents have as great an influence on the frequency, as on the fatality, of sickness. The obvious inference is, that man has as much power to prevent, as to cause, disease.

Yet neither the public, nor medical men, the guardians of the public health, have their attention called to the PREVENTION of sickness—it forms no part of their education.

It has been proved that, in the present state of things, the mortality is greatly augmented wherever large masses of the people are brought together. It will be the duty of the government, the municipal corporations, and all classes of citizens, to render the towns of this country, and every establishment where large numbers are collected

together, perfectly adapted to the wants of human organization, and compatible with the full enjoyment of health.*

“J’ai vogagé, j’ai habité a dessein differens pays ; j’ai medité sur la condition des hommes dans les diverses circonstances de la vie ; j’ai vu qu’ il etoit au pouvoir des gouvernemens de leur faire infiniment plus de bien que tous les livres de medicine ensemble.”†

It may not at first appear that, in treating of the health of the Metropolis we have much to do with the subject of *suicide*, but a little reflection only is necessary to enable us to discover that the increase or decrease of this crime is indicative of a morbid state of the nervous system, or otherwise, in a physical as well as a moral point of view. A desire for self-destruction is a characteristic sign of certain diseased states of mind, not unfrequently attendant on or consequent to bodily ailment ; it has been frequently put forth to prove the choleric disposition of the English nation, that Suicide is very

* M‘Culloch’s Statistics. † Fodère.

common amongst us, and that the month of November was chosen as peculiarly congenial to the perpetration of the crime. Now it happens that the English, compared with the Germans and French, and some other nations of Europe, are by no means prone to it, and this can be easily proved to be the fact.

Dr. Burrows, in his work on Insanity, was the first to point out the groundlessness of the accusation, that the English were addicted to self-destruction.

The profound speculations entered into, and not unfrequently the dreadful losses sustained by the gigantic nature of the commercial dealings of a great mass of people in this country, *would* account for there being a national propensity that way, if the fact were so, but, as it happens to be quite the reverse, it must be admitted that these trials attest the strength and firmness of the public mind in England.

Mr. Higgs, the coroner for Westminster, in 1825, made a report that the number of suicides which had taken place in that city,

during the previous thirteen years, was two hundred and ninety, or an average of rather more than twenty-two annually, the population in 1821 being 182,444. The whole population of London at that time was 1,225,691, affording at the same ratio one hundred and forty-seven annually, or one suicide out of every 208 deaths, the mortality of the metropolis at that time being one in forty annually. The month of *June* was most prolific in suicides, and the month of November the least so. None occurred in the latter month, in either of the years 1812, 1815, 1820, 1824.

Dr. Falret, of Paris,* on the authority of the Police Registers, states that the average number of suicides in that capital, for the ten years ending with 1825, was three hundred and thirty-four annually. This seems an enormous number, considering the population is more than a third less than that of London; but it is a matter of great doubt if even the *whole* truth is told in these registers. In a recently published, "Report

* Quoted in Hawkins, p. 169.

on the commercial relations between France and Great Britain," there are some facts stated, relative to suicide, of a most astounding nature: namely, out of 25,341 deaths which took place in Paris in one year (1826), no less than five hundred and eleven were caused by suicide—being one out of every forty nine and a half. This seems almost incredible, and were it not stated on government authority, one would be scrupulous in attaching credit to it; but the "Report" comes out in such a shape as to leave little doubt of its authenticity. What a frightful picture is here presented to us of the state of moral feeling in the French Metropolis! With a population of 890,905 (in 1826), to have three and a half times as many suicides as London, and in proportion to the population four times as many.

The average number in Berlin, in the ten years ending with 1822, was fifty-five annually, out of a population of 190,000, or one out of every one hundred deaths, taking the annual mortality at one in thirty-four on the authority of Casper.

The crime of suicide in these three cities existed thus, when the last returns were made ;

Date of last Returns.	City.	Population.	Annual Suicides.	Proportion to total deaths.
1826	Paris	890,905	511	1 out of 49½
1822	Berlin	190,000	55	1 . 100
1821	London	1,225,691	147	1 . 208

It is here proved that the inhabitants of London are not so much addicted to this vice as their neighbours. The small proportion of suicides, to the total deaths, must be taken as strong evidence, not only of the high moral tone that exists in the public mind in Britain, but of the vigour and strength of the nervous system, which bears up against reverses of fortune, greater perhaps than occur in any other country. Englishmen have been long distinguished for equanimity, for cool firmness in danger, and moderation in victory, for quickly resenting an injury, but not harbouring revenge ; and while, on the one hand, they would not desert a friend in the gloom of adversity, they possess the courage to brave the frowns of fate rather than fly to the cowardly refuge of self-destruction.

Though not within the province of the present subject, yet, as it shews how great has been the improvement, of late years, in the *morals* of the metropolis, and in the criminal code of the country, it may not be superfluous to present a tabular view of the *executions* which have taken place in the nineteen years ending with 1834, and the crimes for which the culprits suffered. To the thinking mind it must reveal the fact that, as education extends and civilization spreads, both the moral and physical powers of man improve—the government is more mild and the law more lenient; and the farther we advance from barbarism, the less inducement there will be to crime, and the less necessity for the interference of the law. Of the three hundred and thirty-two persons, who appear to have forfeited their lives, a very large majority, two hundred and eighty-four, may be said to have been actuated by *avarice*, and the remaining forty-eight by *passion*.

EXECUTIONS IN LONDON.

CRIME.	YEARS.																							
	1816.	-17.	-18.	-19.	-20.	-21.	-22.	-23.	-24.	-25.	-26.	-27.	-28.	-29.	-30.	-31.	-32.	-33.	-34.	Total.				
Arson	3	6	2	7	9	4	11	9	3	8	4	1	2	8	1	2								2
Burglary												2	3	1	1									86
Coining																								5
Extortion					2	2																		4
Forgery		2	4	1	1	1	1	1	2	1	1			1	5									21
Letter breaking				4																				5
Murder	6	1	3	1	1		1		1	1	1			1	2	1	2	1						25
High Treason					5																			5
House-breaking					1		5	1				1		4										12
Maiming	1					1		2						2										6
Maliciously shooting				1																				3
Robbery, Highway	1	5	1	5	5	13		1	3	1	7	5	2	2	6	1		2	2					60
— and Riot		1	2																					1
— on Thames	2																							1
Stealing in dwelling house				2	2	2		1			1	2	1	1										4
— sheep					1	1					1	2	1	1										13
— privately						1			1															7
— horse					1					4	1													2
Piracy																								6
Rape										1		1				2								6
Smuggling																								3
Uttering forged notes	3	3	8	4	14	6	3	2	1					2	1									1
Unnatural offence	2			1	1	1	2	1																47
Sacrilege																								6
Totals	18	23	20	26	43	33	23	18	11	17	16	17	22	28	6	4	4	3	0					

CHAPTER VI.

Causes prejudicial to health—Situation and extent of London—Number of its streets and squares—The town built on what Geologists term a *Basin*—Similar to those on which the Isle of Wight and Paris stand—Boundaries of the Basin—The strata of which it is composed—Difficulty of making wells through the Clay stratum—Inclination of the Ground—Table of Elevations of 187 streets in and about London—Hampstead 430, Westminster Hall one foot above the Thames—Some parts below the level of the river—Excellence of the Carriage Ways and Foot-paths in the Metropolis—Magnitude and vast Extent of the Sewerage under the Town.

It has been shewn that the metropolis has, of late years, risen greatly in point of salubrity—that the prevalent diseases are less numerous, and less malignant, than they formerly were—that the mortality annually is not so great, by one-half, as it was a century ago; and that, in point of salubrity, it

stands above the capitals of most other countries. On the other hand, it is obvious that much still remains to be done, the difference in health and in mortality between it and the country being very great.

The health of this vast city, the metropolis of the British Empire, and in a commercial point of view, of the whole world, the shrine of literature and science, the resort of human beings of every clime, cast, and complexion, the mart of the universe, the permanent residence of nearly two millions of people, on whose services depend not only their own individual interests, but those of many of the inhabitants of the provinces—the well-directed political schemes of the Government on the one hand, and the bold, commercial spirit of its merchants on the other, shedding rays of confidence and prosperity to the most distant confines of the kingdom, it will be readily acknowledged, is a subject all-important, not only to the inhabitants themselves, but to society at large.

To investigate the causes that are prejudicial to the salubrity of the metropolis, it

will be necessary, in the first place, to take a brief notice of its situation, extent, climate, and population.

Situation. London stands $51^{\circ} 31'$ N. L. and $5^{\circ} 37'$ W. L.; it is situated about 60 miles West, and 50 North, from the sea, on the banks of the Thames, where the mean width of the river is about a quarter of a mile, and its mean depth 12 feet. The northern bank slopes gently upward, and its soil is chiefly gravel, loam and sand; on the south side, the surface is almost uniformly flat. The length of the Metropolis from east to west, or from Hyde Park to Stepney Green, is exactly 6 miles, and its breadth varies from 2 to 4 miles.*

Its circumference may be estimated at 30 miles, and its area, extending over 11,520 square acres, is about 20 square miles.

In 1830, on the nearest computation, London contained 80 squares, and about 9000 streets, lanes, alleys, rows, and courts. It

* If the suburbs of Kensington and Poplar be included in the measurements, the length of the town would be nearer 9 miles.

is built on ground supported by various strata, lying in contact with and over each other. These strata, or layers, bend or dip in the middle, so as to form what geologists term a *Basin*. The dipping causes a greater thickness, and a greater variety of layers in the middle than at the circumference or edges of the basin.

The Isle of Wight, and the city of Paris, also occupy basins very similar to that on which London stands.

These basins seem to owe their existence to depressions in the *chalk* formation, which extends under them all.

1. The situation of the London basin is formed by a long line of chalk hills, including those of Surrey and Hampshire, called the North Downs, extending through Basingstoke to some distance beyond Highclere hill in Berkshire; the western extremity is much contracted, and seems to lie somewhere in the vicinity of Hungerford. Its north western side is formed by the chalk hills of Wilts, Berks, Oxford, Buckingham, and Hertford—shires.

The most northern part of this boundary has not yet been well determined. On the east it is open to the sea, the coasts of Kent, Essex, Suffolk, and Norfolk, being sections of the strata deposited in it.

The depth of the chalk below the surface at London is very considerable, since wells have been sunk several hundred feet without its being reached: but a few miles south of the metropolis it is frequently come to.

2. Next to the chalk lies a stratum* of green, yellow, or variously coloured sand, containing ferruginous matter and marine deposits.

3. The third stratum is a bed of sand and plastic clay, which must be a most extensive and continuous formation from the great and constant supply of water that is obtained by boring down to it.

4. Then comes the London, or Blue clay.

* The New River Company commenced sinking a well contiguous to their reservoir in the Hampstead-road, near Tottenham Court-road, in 1835; and the chalk was unexpectedly reached at a depth of only 150 feet below the surface; this is the first time it has been met with in London, or, at any rate, within such a small distance from the surface.

Of all the strata over the chalk in this country, it is of the greatest extent, and thickness, and the number, beauty, and variety, of the organic fossils which it contains renders it most interesting, and the most easily recognisable.

5. Lastly comes a superficial layer of gravel and mould, on which the buildings rest. The third stratum is the great reservoir of water, round and under London, which generally bursts out with great violence as soon as the stratum is cut into.

The blue clay stratum is generally the thickest; wells 70 feet deep have been dug at Harrow on the hill, and several in London are between 200 and 300 feet deep; at other places on rising grounds the thickness of the stratum is much greater. In digging a well at Wimbledon, for Lord Spencer, the workmen were obliged to go 530 feet before they came to the sand and gravel bed containing water.

At Primrose Hill, near the Regent's Park, some years ago, the ground was bored to the depth of 500 feet without success. One

mile east of London, the clay is only 77 feet thick ; at a well in St. James's Street it is 235 feet, and at High Beach 700 feet thick.*

In the spring of 1834, a Water Company sunk a well on the lower heath at Hampstead, below the ponds, which was dug to the depth of 350 feet before reaching a supply of water, and even then the sand ran with the water in such a way as to make the steam-pump machinery nearly useless.

It has been already observed that the ground rises from the North Bank of the Thames, this it continues to do to the northern suburbs, Hampstead and Highgate. The ascent in the town is in most places so gradual as to be scarcely perceptible, consequently the town is considered flat, and indeed it is so far level as to entail on the inhabitants an enormous expense in the proper construction and maintenance of shores and drains to meet the demands of common cleanliness, comfort, and even safety from disease ; actual measurement shews, however, the declivity is not only

* De la Beche, manual, p. 237.

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sufficient for this purpose, but that the difference of elevation in various parts of the town is very considerable.

As reference will afterwards be made to the various differences, it may not be out of place to give here the levels of the principal parts of the metropolis, and neighbourhood above the Thames high-water mark, as lately ascertained by Messrs. Wood and Moffatt, Surveyors.*

ELEVATIONS ABOVE THE THAMES.

	Feet.	Inches.
Hampstead, Jackstraw's Castle.....	433	
Hampstead Heath	427	
Highgate Church	414	
Shooter's Hill	411	
St. Paul's Cross	406	
Highgate Archway	259	
Top of the Monument	226	
Primrose Hill	206	
Whittington's Alms-houses	200	
West Middlesex Reservoir, Primrose hill ..	177	
Eyre's Tavern	151	
Greenwich Observatory	144	
Highbury Terracc, Islington	142	
Blackheath	137	

* Geometrical Landscape, and Table of Relative Altitudes, calculated from the Trinity high-water mark of the River Thames, by F. Wood & J. W. Moffatt, Surveyors, Knightsbridge, 1828.

	<i>Feet.</i>	<i>Inches.</i>
St. John's Chapel, St. John's Wood	120	
Highbury College	118	
New River reservoir, Pentonville Hill	118	
Sir Herbert Taylor's house, Regent's Park	117	
Inner Cirele, Regent's Park	116	
White Conduit House, Pentonville	116	
Mr. Greenbough's house, Regent's Park ..	114	
Reservoir, Regent's Park	113	
Marquess Hertford's house, Regent's Park	111	
West Middlesex Water-works, Kensington	111	
St. Katherine's hospital, Regent's Park ..	107	
Gloucester Gate, Regent's Park	104	
Horse Guards' barraeks, Regent's Park ..	100	
Christ Church, Marylabonne	95	3
Obelisk, City and Goswell roads	90	
Trinity Church, Marylabonne	88	4
Grand Junction Water-works, Paddington	86	6
Sadler's Wells Theatre	85	7
Stoke Newington church	80	
Lake's surface, Regent's Park	84	9
Marylabonne Church.....	83	1
All Souls' Church	82	10
Duke of Somerset's House, Park lane	82	8
Dorset Square, South side	82	3
New River, at City Road	81	6
Duke of Kent's Statue, Park Creseent	81	4
Middlesex Hospital	81	3
St. Mary's Church, Marylabonne	79	8
University College.....	79	8
Cumberland Gate, Hyde Park	79	8
Fitzroy Square, East side	79	8
St. James's Chapel, Pentonville	79	6
St. George's Chureh, Bloomsbury	79	2
Portland House, Cavendish Square	78	9

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	Feet.	Inches.
Montague House, Portman Square	78	5
Camden Chapel, Camden Town	77	11
Pantheon, Oxford Street	76	8
Bedford Square, South side	76	5
Hanover Chapel, Regent Street	76	5
Cavendish Square, South side	76	4
Bryanstone Square, South side	76	1
Montague Square, South side	75	
St. Giles's Church	74	6
Portman Square, South side	74	5
Coumaught Square, South side.....	73	4
British Museum	72	11
Meux's Brewery, Tottenham Court Road ..	72	9
Hertford House, Manchester Square	72	6
Soho Square, South side	71	3
Grosvenor Square, South side	70	4
Russell Square, South side	70	3
Reservoir, Kensington Gardens	70	2
Red Lion Square, South side	69	9
Bloomsbury Square, North side	69	2
St. Pancras' new church	68	9
Manchester Square, South side	68	2
Queen Square, South side.....	68	
Euston Square, South side	66	10
Kensington Palace, West side	66	1
Anglesea House	65	7
Burton Crescent	65	5
Hanover Square, South side	65	2
Covent Garden Theatre, front	65	
Freemasons' Tavern	63	5
Lincoln's Inn Fields, North side	62	
Brunswick Square, South side	61	1
Veterinary College, Camden Town	60	7
County Fire Office, Quadrant	60	3

	Feet.	Inches.
Foundling Hospital, South side	59	11
College of Surgeons	59	7
Oxford Street, No. 287 (lowest point)	59	3
Mecklenburgh Square, South side	59	2
Regent Square, East side	59	
St. Paul's Church, Covent Garden..	58	7
Drury Lane Theatre, front	58	7
Foot Guards Barracks, Hyde Park.....	58	3
Achilles' Statue, Hyde Park (base)	58	
St. Pancras, old church.....	57	10
Seddon's Manufactory, Gray's Inn Road..	55	10
Gray's Inn Church	54	8
Holborn Bars	54	8
Aldersgate Bars	54	6
Imperial Gas Works, King's Cross.....	53	8
Reid's Brewery	53	8
St. Paul's Cathedral floor	52	8
Devonshire House.....	52	1
Furnival's Inn, Holborn	51	9
Regent's Canal, City Basin	51	1
Leicester Square, South side	50	6
General Post Office	49	8
Berkeley Square, East side.....	49	2
Apsley House, Piccadilly door.....	49	
Lansdowne House, Berkeley Square	48	5
Giltspur Street Compter	47	6
St. James's Church, Westminster	47	3
Christ Church School.....	47	
Bow Church, Cheapside	46	3
City of London Tavern	46	2
St. Sepulchre's Church	46	
Sessions House, Clerkenwell.....	45	11
East India House	45	11
Charter House	44	9

ELEVATIONS ABOVE THE THAMES. 175

	Feet.	Inches.
Bartholomew's Hospital	44	3
Gloucester House, Piceadilly	44	3
Hyde Park Corner	43	9
Reservoir rim, Green Park	43	4
Horse Guards Barracks, Knightsbridge....	42	6
Finsbury Square, West side	41	10
Royal Exchange.....	41	9
St. Paul's, West gate	41	8
Guildhall door.....	41	
Newgate, Debtor's door.....	40	1
St. Martin's Fields Church	39	7
St. George's Hospital	38	11
Somerset House	38	11
London Institution	38	8
St. Dunstan's Church, Fleet Street.....	38	7
Serpentine River, surface	37	9
Trinity House	37	5
St. Andrew's Church, Holborn Hill	37	1
Bank of England	36	10
Excise Office, Broad Street	35	9
Knight Rider Street, Doctors' Commons ..	35	6
Corn Exchange, Mark Lane.....	35	2
Temple Bar, road.....	34	6
St. Martin's Church, Ludgate Hill.....	34	5
St. Clement Dane's Church.....	34	2
Haymarket Theatre	33	3
Auction Mart	33	
Finsbury Circus, North side.....	32	4
Mansion House ..	31	3
Tower Storehouse	31	
Mint	29	2
Opera House	29	
St. James's Square, East side	26	8
College of Physicians.....	26	8
Temple Church floor	25	8

	Feet.	Inches.
Carlton Terrace	25	1
Monument, base	24	8
St. Brides' Church	24	6
Apothecaries' Hall	24	1
Ordnance Office, Pall Mall	22	4
Belgrave Square, North side.....	20	5
St. Peter's Church, Pimlico.....	18	1
St. Luke's Church, Chelsea	17	3
Northumberland House.....	17	1
Charing Cross Statue.....	16	
Obelisk, Bridge Street, Blackfriars	15	11
Stafford House, Green Park.....	15	6
St. James's Palace	14	11
Military Asylum, Chelsea.....	14	1
Buckingham New Palace	13	4
Eaton Square, East side.....	12	4
Holborn Bridge, lowest level	11	
Custom House	10	7
Admiralty	10	5
Fleet Prison.....	9	9
Colonial Office, Downing Street	8	11
Sessions House, Westminster	8	6
Greenwich Hospital	6	11
Westminster Abbey	5	5
Council Office, Whitehall	5	
East India Docks	4	7
Obelisk, Blackfriars road	4	5
Westminster School	4	2
St. Saviour's Church.....	3	8
Elephant and Castle	3	
House of Lords, door	2	10
Horse Guards	2	7
Fyfe House, Whitehall	1	6
Westminster Hall floor	0	11

BELOW THE THAMES.

	Feet. Inches.	
Lake, St. James's Park, surface	5	1
Surrey Canal, surface	3	8

It will be seen by this table of elevations that, although the town is, for the most part, flat, there are considerable inequalities observed on measurement. The northern environs, for instance, are upwards of 400 feet above the Thames, while no part of Westminster much exceeds 80 feet above the river. Again, the true elevations of places are often different from what the appearance of the ground would seem to indicate; a person would scarcely suppose, for example, that the elevation of the ground at St. George's church, Bloomsbury, and at St. James's chapel, Pentonville Hill, is the same. Many parts of Westminster and of Southwark are within a few feet, and some even within a few inches, of ordinary high-water mark, and, were it not for the embankments along the Thames, these parts would be often inundated. The surface of the lake in St. James's Park is five feet below the Thames, and the water is supplied by

letting the river flow into it by a sluice; in August, 1827, the form of this lake was altered; but, before that could be accomplished, it was found necessary to erect a steam engine, in the Park, to pump out the water. Thus the water, once admitted to this ornamental reservoir, cannot again flow out, but stagnates, until it is either removed by hydraulic means, or by the slow process of evaporation. By the latter operation abundant effluvia and miasmata are produced, whenever the weather is at all sultry; and the verge of this puddle has been chosen whereon to expend above a million sterling in the erection of a bedlam-like building as a royal residence.

The foregoing observations are advanced with a view to shew that the flatness of the metropolis operates against its salubrity, by preventing a natural ventilation in the streets, and by rendering the construction of shores and drains a matter of very considerable difficulty.

Few things more strongly characterize this immense city than the excellence of its

carriage and foot ways. Persons who have endured the torture of the *trottoirs* of Paris, or narrowly escaped being ridden over in its narrow, vile alleys, must be forcibly struck by the superior accommodations afforded to the London pedestrian. All the streets of London are paved with great regularity. The carriage-road is either laid with cubes of granite, accurately jointed, and embedded in clay, or else it is *macadamized*, a term now rendered familiar in English orthography, immortalizing the individual to whose energies so much of the superiority of English roads is attributable.

The antiquary and the classic dilate with enthusiastic rapture on the magnificent substructions of ancient Rome—of its *Cloacæ*, capacious enough to afford transit to one of our travelling vans, and swept by a stream impetuous enough to cleanse the Stable of Augæus. London cannot, indeed, boast such colossal subterraneous tunnelling; but there is not a street, lane, or alley in this vast metropolis, which is not perforated, so to speak, with arched excavations. Every

house individually communicates, by one or more drains, with the main sewers, which again empty themselves into larger tunnels, and ultimately disgorge their contents into that vast receptacle and universal solvent of London's impurities, the mighty Thames.

CHAPTER VII.

Climate of London—Its Peculiarities—Does not extend to St. Paul's cross, or to Hampstead—Natural composition of the Atmosphere the same in all situations, but contaminated in towns—Half a gallon of Pure Air per minute necessary for the support of Life—The horrible Destruction of Life in the Black Hole at Calcutta from want of Air—Atmosphere in London unusually Foul—Heavily charged with Carbonic Acid Gas—Mists and Fogs—London Fog peculiar—Temperature higher in London than in the Neighbouring Counties—Temperature of London compared with that of other Cities—East and North Winds more prevalent than West and South, in proportion of three to two—Table of Prevalence of Winds in London and some other places—Less rain falls in London than elsewhere—Table of quantities at various places—Reason for small quantity in London—Absence of rain prejudicial to the health of the town—and to the appearance of the buildings—The *Blacks*—Quantity of Coal consumed in London.

THE Cross on St. Paul's Cathedral, as it may be seen by the foregoing table, is nearly on a level with Hampstead heath, and the

clearness of the atmosphere at that height, may be easily seen in London, by observing that, although the town may be enveloped in fog and smoke, the gilt ball and cross on the cathedral are sparkling in the sun-shine. The same contrast is vexatiously experienced if a person mount the dome of the building for the purpose of seeing the metropolis at one view; on reaching the elevated station he sees the country for many miles around, but if he looks for London, he finds himself literally *in nubibus*, a firmament being between him and it.

The Atmosphere we breathe is a compound of two gases, *Nitrogen* and *Oxygen*, the former incapable of supporting life from its negative, the latter almost as incapable from its over positive properties. The air consists of seventy-nine parts in the hundred of Nitrogen, and twenty-one of Oxygen. It generally contains impurities also, consisting of Carbonic Acid gas, and other extraneous vapours. The air has been analyzed in all parts of the globe, and in all situations, on the tops of mountains, and taken

from the greatest elevation attained by balloons, on the decks of ships, and in the deepest vallies, but its chemical composition is always found the same.

Vapours of animal and vegetable matter mingle with it mechanically, and the presence or absence of these give character to the salubrity of places. The air on elevated situations is most free from these impurities, plains and the sea have more of them, but the close atmosphere of cities and towns is most of all contaminated by them. The air undergoes important changes in the lungs of all animals, and the more frequently it has passed into and out of the chest, either of man or of brute, the less fit it is for further use.

Physiologists calculate that man requires half a gallon of pure air per minute ; when it is received into the lungs, and again exhaled, it is charged with many impurities mentioned above, and it is specifically heavier, so that the air that has been respired by a number of individuals collected together in a confined building, or in the hold of a ship, becomes unfit for further

use, and, unless a fresh supply be obtained, their lives are endangered, and may indeed be lost. The well-known circumstance of one hundred and twenty-three persons having been thus sacrificed in a dungeon in Calcutta in 1756, is a fact painfully conclusive on the subject.

From the general evenness of the ground, as well as from the immense mass of living beings occupying it, the air in London, besides being adulterated with vast quantities of smoke and singularly dense fogs, is more loaded with impurities, such as have been mentioned, than it is in most other places in the kingdom. The air, when once received and expelled from the lungs, becomes charged with carbonic acid gas, and the atmosphere in London is considered to be much vitiated by this impurity.

It may exist to an extent highly injurious to the animal economy, without being in such quantity as to be easily detected by *chemical* means. Many persons, however, have affirmed that they have by such means proved it to exist in considerable quantity

in the atmosphere in London, and more particularly in the borough of Southwark, which lies lower than almost any part of London north of the Thames; and, as it is the nature of the carbonic acid gas, from its great weight, to gravitate to the lowest level, its being so abundantly found in this part of the town may be easily accounted for.

London is frequently enveloped in a mist, or fog, of greater density than is observable in any other part of the kingdom, more particularly in winter.

Mists are of two kinds, *dry* and *wet*. The latter are seldom met with in the torrid zone, but they continually brood over the polar regions. The dry fog, according to some philosophers, arises from subterraneous vapours; it exhibits an intimate connexion with volcanic eruptions: such was the case with the celebrated mist which, in 1783, enveloped all Europe, at the moment when the volcanic fire made Iceland tremble, and immediately after the disaster of Calabria.

In 1755, before the dreadful earthquake

which befel Lisbon, a similar fog overspread the Tyrol and Switzerland; it appeared to be composed of earthy particles reduced to an extreme degree of fineness.*

The dry fog, so frequently observed in the months of November and December in London, seems to be composed chiefly of smoke, which, from its great weight, is unable to rise from the earth, when the surrounding atmosphere, as indicated by the fall of the Barometer, becomes specifically light. The colour of it corresponds with that of smoke, and it generally possesses a sooty, suffocating odour. Its sudden invasion of, and as sudden departure from, different parts of the town, and its not being seen often after midnight, or at any other time when fires are not generally burning, would lead one to conclude that exhalations from the earth have very little to do with this species of fog. It is of a bottle-green colour, but if the Barometer rise, it will either totally disappear, or change into a white mist. It is sometimes so dense as to prevent objects being discerned even at the distance of a

* Malte Brun, *Geographie Universelle*.

few yards, and, in consequence, many accidents occur in the streets, from the carriages and other vehicles coming into contact with each other.

This state of atmosphere is considered peculiar, and has the appellation of the *London fog*. It causes such darkness that lights are indispensable for the transaction of business. It sensibly affects the organs of respiration, so much so, indeed, that persons having delicate lungs frequently experience a feeling of suffocation. Powerful as is the gas flame in the lamps, the light is not discernible many yards from the lamp-post.

If a person require half a gallon of pure air per minute, how many gallons of this foul atmosphere must be, as it were, filtered by his lungs in the course of a day! the extraneous matter is so abundant as to produce oppressed respiration and cough, in the most vigorous constitutions.

The atmosphere in London, in point of warmth, is considerably above the mean temperature of Middlesex, or other adjoining counties. It is liable to sudden variations,

and occasionally to fogs of extraordinary density during the winter months. The mean temperature is 51° F. The extreme range of the Thermometer may be taken in January 1795, when it sunk to 38° below Zero, and in July, 1808, when it rose to 94° in the shade. In 1829, the Thermometer averaged 47, the highest being 76, and the lowest 18. The Barometer the same year averaged 29.73, the highest being 30.58, and the lowest 28.88.

The following table exhibits a comparison of the temperature of London with that of other places.

	Average annual heat.	Jan , greatest degree of cold.	July, greatest degree of heat.
London . . .	1000	1000	1000
Paris	1028	1040	1037
Edinburgh . .	923	1040	914
Berlin	942		
Stockholm . .	811	1583	964
Petersburgh .	746	3590	1008
Vienna	987	1305	1037
Pekin	1067	1730	1283
Bordeaux . . .	1090	925	1139
Montpellier .	1170	850	1196
Madiera	1319	559	1128
Jamaica	1557		
Madras	1565	491	1349

This table, of course, only presents the *relative degree* of heat or cold in the several places as compared with London.*

Thus it appears that, in Pekin, the summer is intensely hot; but on the other hand the winter is so very cold that the average quantity of heat throughout the year is very little more than in London.

It is found that Easterly and Northerly Winds prevail in this country over the Westerly and Southerly. The former blowing three days throughout the year, to the latter blowing two. This is observed to be the case in London even in a much greater ratio, whereas, in Liverpool, the difference is small.

The following table shews the number of days during which Easterly and Westerly winds blow at different parts of the island: under the term Easterly are included S.E., E., N.E. and N., under Westerly are included N.W., W., S.W. and S.

* Kirwan, Rees' Cyclopædia.

WINDS.				
Number of years of observation.	Places.	Days Easterly.	Days Westerly.	
10 .	LONDON .	233 .	132	
7 .	Lancaster .	216 .	149	
51 .	Liverpool .	190 .	175	
9 .	Dumfries .	227.5 .	137.5	
10 .	Bransholme	232 .	133	
7 .	Cambuslang	214 .	151	
8 .	Hawk-hillEdin.	229.5 .	135.5	
	Mean	220.3	144.7	

It is a curious circumstance that less rain falls in London than in any other place in the kingdom, as far as the observations of meteorologists have gone. Dr. Dalton, of Manchester, collected the results of observations made at various places, by which it appears that the average quantity of rain that falls annually in this country, on any given surface, is in depth twenty-six inches and a half, whereas in London, after forty years' observation, the annual quantity is found to be only about twenty inches. It is further to be observed that one of the places mentioned by Dr. Dalton is omitted in taking this average, namely Kendal, in Westmorland; the quantity of rain which falls there is unusually great, being nearly fifty-four inches;

it is so much greater than what falls in any other place that it seems but fair to make it an exception to the country generally, instead of including it in taking the average.

The following table shews what quantity of rain falls annually at various places, the average of many years' observations being taken—by Dr. Dalton.

Number of years of observation.	Place.	Inches.
40 . .	LONDON . .	20.686
33 . .	Manchester . .	36.140
18 . .	Liverpool . .	34.118
16 . .	Chatsworth . .	27.664
20 . .	Lancaster . .	39.714
25 . .	Kendal . .	53.944
16 . .	Dumfries . .	36.919
17 . .	Glasgow . .	21.331
		French Inches.*
15 . .	Paris	18.649
40 . .	Viviens	33.977

We know that aqueous vapours exhale from both the sea and land, are suspended for a time over the earth, are in time condensed, and fall in the form of dew, rain, or snow; it may not therefore be difficult to account for the very small quantity of rain that falls in the metropolis in two ways; the aqueous exhalations cannot be

* One-twelfth more than the English.

abundant from a surface so altered from its pristine state, so covered with buildings, human beings, and constantly burning fires, the quantity of vapour supplied, therefore, may be taken as little or none ; again, if watery vapours should find their way towards, and hang over, the town, heated air rising from half a million fires, instead of promoting the condensation of the vapour, must assist very materially in rarifying the surrounding atmosphere, and dispersing the supernatant clouds.

It was ascertained by the late Professor Leslie that the capacity of the atmosphere for moisture varied according to the temperature ; and that the higher the temperature the greater the quantity of moisture it could sustain ; he discovered that air at

140°	could hold	1-10th	part its weight of moisture.
113°	.	20th	.
86°	.	40th	.
59°	.	80th	.
32°	.	160th	.

from which it would appear that moisture, which would otherwise fall, is held suspended by reason of the high temperature of the atmosphere over the metropolis.

These seem the most rational modes of accounting for the small quantity of rain. Some idea may be formed of the radiation of heat by comparison with the *light*; the atmosphere over the town is illuminated at night to such a height that, at a distance even of twenty miles, a broad and lofty column of light is plainly seen, and marks the situation of the capital.

In the squares and gardens contiguous to private houses, ever-greens and other shrubs are planted, but they do not thrive as they would do in the country, they are stunted in their growth and often die without attaining to an ordinary size; if you pluck a branch from one of them your fingers are smeared with soot; one of the most inconvenient effects of this smoky state of atmosphere is the sorry complexion it imparts to one's linen or light-coloured garments. By the time a person has been in the streets two or three hours, the glory of the laundress and the clear-starcher is laid, not in the dust, but in smoke, which forms itself into myriads of flocculi, desig-

nated "*blacks*," and the blacks are by no means capricious, for they stick most assiduously to ladies' and gentlemen's dresses, if the weather be more than ordinarily dense.

When we consider how great a quantity of coal is consumed in the metropolis, we can scarcely be surprised at the atmosphere being often loaded with smoke and soot. By a parliamentary return it appears that there were imported into London

In 1833	. .	2,014,804½	tons of coal
1834	. .	2,080,547	—————

CHAPTER VIII.

Population of London—increasing in a greater ratio than that of the Country—Its state in last Century—Population of the several Parishes—Population of town at present—That of the city diminishing—Metropolis has greater population than Dorset, Somerset, Devon, and Cornwall together—Prejudicial effects of crowded population to animal and vegetable health.

AMONG the causes of the insalubrity of the metropolis is the circumstance of its containing such an immense population: according to the most authentic data we possess, London has a greater number of inhabitants than any other city in the world. It is true the chief cities of the celestial empire are said to contain more, but on this subject,

like every other relating to that extraordinary country, we are in comparative ignorance.

Not only is the population of the metropolis very large, but its annual increase is greater in proportion to its number than the increase in the country at large, unlike those cities which are surrounded by fortifications, in which the numbers of inhabitants do not materially increase.

London contained in

1700	;	.	674,350 persons
1750	.	.	676,250
1801	.	.	900,000
1811	.	.	1,050,000
1821	.	.	1,225,694
1831	.	.	1,471,941

The following is an account of the population of the several parishes in London at the two last censuses in 1821 and 1831 :

LONDON POPULATION.

Parishes within the London Bills of Mortality.

	1821	1831
City of London within the walls .	56,174	55,778
Without the walls	69,260	67,905
Westminster	182,085	201,842

POPULATION.

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SOUTHWARK.

	1821	1831
Christchurch	13,339	13,705
St. George the Martyr	36,368	39,769
St. John, Horsleydown	9163	9871
St. Olive	8420	8694
St. Saviour	16,808	18,006
St. Thomas	1807	1456

OUT PARISHES IN MIDDLESEX AND SURREY.

St. Andrew's, Holborn	26,492	27,334
Old Artillery ground	1487	1411
St. Mary, Bermondsey	25,325	29,741
St. Matthew, Bethnal Green	45,676	62,018
St. Botolph, Aldgate	6429	3453
Charter House	144	164
Christchurch, Spitalfields	18,650	17,949
St. Clement Dane's	4010	3864
St. James and St. John, Clerkenwell	39,105	47,634
Duchy of Lancaster, part of	489	410
Ely Place	268	216
St. Giles and St. George, Bloomsbury	51,793	52,907
St. George in the East	32,528	38,505
Glass House Yard	1358	1312
St. John, Hackney	22,494	31,047
St. Mary, Islington	22,417	37,316
St. Katharine's	2624	72*
St. Mary, Lambeth	57,638	87,856
St. Ann, Limehouse	9805	15,695
St. Luke, Middlesex	40,876	46,642

* Nearly the whole parish was excavated and converted into a dock.

	1821.	1831.
St. Mary, Newington	33,047	44,526
Rolls Liberty	2737	2682
St. Mary, Rotherhithe	12,523	12,875
Saffron Hill and Hatton Garden	9002	9529
St. John, Savoy	222	431
St. Sepulchre, part of	4740	4769
St. Paul, Shadwell	9557	9544
St. Leonard, Shoreditch	52,966	68,564
St. Dunstan, Stepney	49,163	67,872
Tower Liberty	463	433
Old Tower precinct	205	280
St. John, Wapping	3078	3564
St. Mary, Whitechapel	29,407	30,733

PARISHES NOT WITHIN LONDON BILLS OF
MORTALITY.

	Population.	
	1821	1831
St. Luke, Chelsea	26,860	32,371
Kensington	14,428	20,902
St. Marylabonne	96,040	122,206
Paddington	6476	14,540
St. Pancras	71,838	103,548

SUMMARY.

City	125,434	123,683
Westminster	182,085	201,842
Other parts	918,175	1,146,416

Total, London 1,225,694 1,471,941

It will be seen by the foregoing returns that the population of the metropolis (from the dreadful abuse of ardent spirits which then prevailed, and which will be more fully considered hereafter) did not increase from the beginning to the middle of the last century, but that it has more than doubled itself in the last eighty years. The increase during the last ten years has been about 25,000 annually, and it was stated in an article on the subject in the Penny Magazine, February 1835, that at that time the population of London amounted to 1,776,600.

In the city of London and other dense parts of the metropolis, the people are diminishing in number, while in the parishes on the suburbs they increase in rapid progression; thus, in the parish of Paddington, the population has more than doubled in ten years.

Here, then, is a mass of people amounting in number to more than a million and three quarters, constantly occupying the same flat, ill-ventilated spot. If the health of a place is in an inverse ratio to its population,

which no one can reasonably doubt, how much must the inhabitants of London suffer from the fact of their numbers being so immense! The space occupied by the metropolis is, as was previously observed, about twenty square miles, and here is a population considerably greater than is found in all the four great western counties of England, Somerset, Dorset, Devon, and Cornwall,* the area of which is no less than 6553 square miles. The contrast is very striking, and the difference between the rural and the town district, in point of salubrity, is correspondingly great.

When we consider that each person requires about half a gallon of pure air per minute, we might, with some appearance of reason, inquire how it is that the immense population of the metropolis contrive to exist as well as they do, seeing that they cannot have their natural allowance of this essential element? the answer is not easily given; but we know that the inhabitants

* The population of these four counties was, in 1831, 1,358,868.

experience the influence of the privation in every possible way ; outwardly, in their stature and complexion ; and inwardly, in their bodily strength, in their clothing, their dwellings, and in being deprived of the very light of heaven. It may be observed, in passing, that not only does animal life suffer in London from an impure atmosphere, but also that the few trees, shrubs and plants that are nursed in the squares and conservatories, dwindle and die in frequent succession, and evidently from a want of the same vivifying fluid.

Under these circumstances the vast population of London, hampered in their habitations, busily engaged in laborious occupations, and repeatedly inhaling the same air, cannot be expected to enjoy very vigorous health. The numbers would not have operated so much against the public health had the ground been hilly instead of flat : as it is, the people contaminate the atmosphere, and the flatness of the ground prevents ventilation from taking place.

CHAPTER IX.

The Streets and the Buildings in London—Formerly of Wood—Many of the Streets too narrow for the traffic—Want of method in planning Streets—Formation of the New Road from Paddington to the city—Passing of the Building Act in 1774—Its Provisions—Paving of the Streets—Comparison between London and Paris Streets—Extent, Management, and Expense of the Sewerage of London—and Neighbourhood — Proposed improvements in planning Streets—Increased value of Property generally equal to the expense of alteration—Want of a bridge at Holborn Hill—Great obstruction by means of gates in various parts of the metropolis.

THE buildings in London, previous to the great fire in 1666, were principally of wood ; they were very irregular in their outward appearance, and miserably confined, and straitened within ; the ceilings were extremely low, and the windows small ; it was usual for them in most cases to project in front, and to hang over the street ; thus was the house not only cumbrous in itself, but it

incommoded the thoroughfares of the city. Since that time, not only have individuals found it their interest to adopt better plans of building, and to use better materials, but the parliament has, on frequent occasions, enacted laws to regulate the laying out of new streets and authorize a superintendence in the construction of the houses.

Much benefit to the public has occurred from these enactments, and it is intended here to shew that, were these laws still more comprehensive, greater benefit would be derived.

The streets, in the more ancient parts of London, in the city for example, are extremely narrow and irregular; in many of them, even to this day, two carriages cannot pass each other; the houses, too, are lofty, and the consequence is no ventilation can take place.

Many of the streets in the city have been widened, but they are still too narrow for the great traffic that goes on through them.

Scarcely a day passes but Newgate Street, Ludgate Hill, Fleet Street, Cheapside, and

Gracechurch Street are absolutely blocked up by carriages, and the thoroughfare entirely stopped.

The obstruction continues sometimes for an hour or longer, and, occurring twice or thrice in the same day, it is almost needless to observe that the salubrity of a street is by no means improved by its being turned into a yard for carriages and cattle, with, perhaps, a flock of sheep or herd of swine added to the stock.

Another inconvenience in the streets is their not always cutting each other across; it frequently happens that one street is abruptly terminated by another intercepting it, as for instance, Farringdon Street is stopped at Holborn Bridge.

This is not only an inconvenience to persons traversing the town, but effectually prevents a free passage of air; the courts, alleys, *culs de sacs*, so frequently met with in the city, are still more prejudicial to the health of the inhabitants.

Narrow, irregular streets, and closely built habitations, are universal in the con-

finest fortified towns on the continent, and the health of the inhabitants is generally good, or otherwise, according as the town is close or open in its streets and avenues.

A very remarkable contrast exists between the ground plans of the old and new towns of Edinburgh; the former is one of the most dense amorphous collections of stupendous buildings ever seen, while the latter is open, airy, and regular almost to a fault; for it is not unusual for the natives of the new town to lose their way at night, the streets in many places are so much alike.

The legislature, with a view to keeping open to the fullest extent certain great thoroughfares, passed an act about the year 1760 for the formation of a wide road from Paddington to the city, along the northern boundary of the metropolis; it was not only enacted that the road should be made, but that no building should be erected within sixty feet of it, so important was it considered having a wide and open communication along the town; it was called the *New Road*, and has retained the name ever since.

In 1774, the *Building Act* was passed, by virtue of which, *District Inspectors* are appointed to inspect every new building during the progress of its erection, to see that certain provisions of the act, as to the thickness of the walls, &c., are duly attended to.

The act provides that buildings shall be divided into seven classes, or rates, and that the walls and chimnies shall be constructed according to regulations in the act depending on the size of the building; but no provision is made for the width of streets or the planning of them, which is of as much importance, in a public point of view, as the construction of the houses.

Proprietors of land seem to be under no control in projecting new streets, and, without reference to public health or convenience, as many houses are crammed on a certain space as possible.

Not only are narrow streets prejudicial to the public health, but the necessity for their being widened at length comes, and a great expense is necessarily incurred.

The paving of the streets in London, the

comfort to the pedestrian, and the convenience to the equestrians and those who ride in carriages, are the admiration of all persons, particularly of foreigners; the introduction of gas, too, has been the means of making the broad ways of the west division of the metropolis as safe, and almost as pleasant, promenades by night as by day. A genuine Londoner can scarcely appreciate these advantages; indeed to do so duly, a person should pass a month in the rainy season in Paris, where the streets are narrow and without foot pavements or gas lamps, but having a stagnant odoriferous gutter along the middle, the contents of which the horses' hoofs and cab wheels splash to the right and left.

Much has been done to improve the streets and ways of the metropolis, and the subterraneous passages, which extend all under it, tend very materially to increase its salubrity. So important has the subject of sewerage and scavenging been considered that parliament has frequently turned its attention to it.

A report was published by the House of Commons relative to it in October 1834, in which it was stated that there was a great want of correspondence between the various sewers of the metropolis, that in very many streets the sewers were full of stagnant and putrid matter, and that the effluvia from the gully holes was so offensive and pernicious that typhus fever frequently broke out in the houses opposite them.*

It has been shewn that there is less health

* Sewers have existed in London since the reign of Henry III. They now extend under every street over the whole town. They are superintended by four sets of commissioners, viz. :

1. For the City of London.

2. For Finsbury and Holborn division, including St. Leonard Shoreditch, and Norton Falgate.

3. Westminster, Hampton, Isleworth, Hammersmith, Fulham, Acton, Hanwell, Kensington, Chelsea, Part of St. Pancras, Marylabonne, Paddington and Hampstead, Tower Hamlets, Spitalfields, Hackney, Mile End and Part of Limehouse.

4. Tower.

The annual expenditure under these commissions is

1 City	.	.	.	£80,000
2 Finsbury	.	.	.	10,000
3 Westminster	.	.	.	24,000
4 Tower, &c.	.	.	.	2000

Treatise on Police, London 1835.

and greater mortality in London than in the country ; and it has also been shewn that the difference is produced by certain obvious causes, many of which might be easily removed, whilst others are altogether beyond our control.

The inhabitants of the metropolis have of late years become more sensible to the value of health and life than they formerly were, and have consequently adopted many salutary measures and plans of improvement in reference to the subject ; but very many important changes require to be effected before justice can be said to be done to persons living under such disadvantageous circumstances as the inhabitants of the metropolis unquestionably do.

The proper ventilation of the town, partly from the nature of the ground, and partly from the heterogeneous Babylon accumulation of the surface, is certainly the most difficult object to be accomplished in promoting its salubrity. Much, however, might be done in widening and throwing open the narrow streets, lanes, courts, and alleys

which harbour malaria and disease, and by exercising a vigorous direction in the laying out of new lines of building.

On the other hand, vast improvements might be effected by the removal of numerous flagrant nuisances, and by reducing others within proper restrictions.

It has been shewn * that scarcely any part of London is one hundred feet above the level of the Thames; which circumstance, connected with the general flatness of the ground, goes far to account for the absence of currents of air sufficient to maintain in a state of purity the atmosphere resting on the metropolis; over this natural obstacle no control can be exercised.

In the next place, an irregular and crooked distribution of streets, many of which are extremely narrow and closed at one end, forms one of the most obvious causes of the insalubrity of certain parts of the town.

The building act, already alluded to, refers only to the construction of the houses; it has had a most salutary effect in securing

* Chap. vi.

safety to the occupants ; it would be equally easy to have a legislative enactment to regulate the width and general plan of new streets ; which, if it were in existence, would tend to increase the salubrity of the town more, perhaps, than any other scheme that could be devised.

That narrow streets for the lower classes, for various warehouses and workshops, for stabling, &c., are requisite, will not be disputed ; but where it is deemed desirable to have such streets, it is the more necessary that they should be in straight lines, open throughout, and intersected by other streets, if possible, at right angles, at very short distances from each other ; instead of which, in the streets, such as are here alluded to, the very reverse is observable ; in almost every particular they are most commonly crooked irregular lanes and blind alleys. That this cross-bar plan of laying out streets is most beneficial to all parties is plainly shewn by its being adopted in the newer parts of London, in the new town of Edinburgh, in the cities of the United States, and in other modern towns.

By the streets intersecting each other *ad infinitum*, and never terminating abruptly, either in a blind court, or by a range of buildings opposing a front to their future extension, currents of air might be obtained in almost any situation, and at all seasons of the year, for the rectilinear streets afford the best passage for the air.

This is the case when the ground is level, but when there is an inclination the draught is much greater, and is more plainly felt.

Next to ventilation is cleanliness ; and if it be necessary, on account of the former, to attend to the direction of streets, how much more essential is this plan of building in reference to the formation and keeping clear of the shores and drains ! It is no uncommon thing at present for public sewers of great size to pass across, and under, houses in all directions ; from which the effluvia often escapes, to the great annoyance of the inhabitants, to say nothing of the detriment caused to their health.

Public convenience requires that streets should be capacious and open thorough-

fares ; and, whether this principle, or a regard to the health of the inhabitants, have most weight in a large city, it must be allowed that gigantic efforts have been made in London, within the last thirty years, to improve the public ways. At first it was supposed that a vast sacrifice of property was the consequence of sweeping away a score of narrow lanes and courts to make one good street ; but experience has shown, in almost every instance, that the fact is the very reverse ; the building-ground on each side of the new street has more than paid the purchase-money of the old houses which formerly occupied the site.

What a strong inducement, then, exists to improvement,—when public health, public convenience, and last, but not least, public profit, are enhanced by the undertaking !

Since the formation of Regent-street, Farringdon-street, King William-street, and Moorgate-street, the advantages of these great works have been better understood, because their benefits have been experienced in every point of view ; and it is hoped that

this spirit of improvement will progress, 'and acquire strength as it goes.' Alderman M. Wood, M.P. for the city of London, has, much to his credit, devoted himself, with great industry, to this subject. In the session of Parliament, 1835-6, he proposed the formation of a public Board of Works for the metropolis, whose objects were to be the improvement of its streets and thoroughfares. Amongst many grand undertakings, he proposed making twelve broad streets in various parts of London, where at present there are no communications, or none sufficient for the public traffic.

Connected with this subject is the improvement of certain streets, where, from their steepness, there is not unfrequently danger to the passenger. Allusion is more particularly made to Holborn Hill, where the inclination is far too great to be travelled over in safety.*

In other cities, and unimportant, as compared with London, such steeps have been effectually avoided, by means of bridges. In

* The inclination is as great as one in twelve.

Edinburgh, for instance, there are as many as seven of these, varying in length from 500 to 1200 feet, and in height from 50 to 120 feet.

A very remarkable circumstance exists in connection with this subject. In several parts of London, more particularly on the Duke of Bedford's property in St. Pancras, and on the Marquess of Westminster's in St. George's, Hanover Square, the streets are *not public thoroughfares*. Gates are placed in some places to prevent the passage of all vehicles; and in others to prevent all but private carriages; and these gates are closed entirely during the night. The consequence is a complete obstruction to public conveyance. It frequently happens that a person returning to his home in a carriage, after ten o'clock at night, is compelled to go nearly a mile round, while the actual distance to his house is not two hundred yards.

The writer has frequently experienced this inconvenience between Euston and Tavistock Squares, and the neighbourhood.

Even on a fire breaking out, the engines are not allowed to pass ; and this the writer has himself witnessed.

How the public have tamely submitted to this exclusive practice of enclosing an estate in the middle of the metropolis, it is not easy to explain.

CHAPTER X.

Tolerance of Slaughter-houses in London—Not in most other Cities—The Smithfield Cattle Market nuisance—Cruel treatment of the animals—Avarice of the Corporation in not abolishing the market—Establishment of extra-urban cattle markets and abattoirs—Cowhouse nuisances—Vitiating quality of the Milk—Its effects on health of Children—Nuisance from Gas-works and other Manufactories—Burial of the dead in London very injurious to the living—Disgraceful state of some Vaults and Churchyards—45,000 bodies interred in London annually—Indecent mode of burial—Custom of burying in Cemeteries of ancient origin—The Churches went to the Cemeteries, not the Cemeteries to the Churches—England almost the only country without Cemeteries—Backwardness of Government in not encouraging their formation—Cemeteries established near London by private individuals—*Pere la Chaise*.

It is admitted that much has been done towards improving the salubrity of the metropolis, great and expensive works have

been undertaken and completed, in the better planning of streets, and in the construction of shores and drains ; but while these have been accomplished, it is rather remarkable that many flagrant nuisances, that offend the senses as well as injure the health, and these too, easy of removal, are allowed to remain. It is a disgrace to a city, like London, that slaughter - houses, ever reeking with gore, and steaming with visceral effluvia ; or that burying-grounds, fat with human remains, should be tolerated in the midst of a dense population, like that which is everywhere to be found in the metropolis ; yet these continue to pollute the atmosphere, and disgust the inhabitants in every parish. In this respect, London is far behind most other cities, either at home or abroad.

One evil grows out of another, and, in this instance, the existence of slaughter-houses in this metropolis is partly attributable, no doubt, to cattle markets being held in the heart of the city. Of all the nuisances in London, perhaps Smithfield market is the greatest ; immense droves of cattle, besides

herds and flocks of all kinds, are here collected twice in every week, or oftener, in a confined, close space, in the most dense and thickly peopled portion of the metropolis. It is almost incredible the numbers of beasts of various kinds that are brought hither for the purpose of sale. In one year there are sold 1,200,000 sheep, more than 150,000 beasts, 22,000 calves, 60,000 pigs, besides from 12,000 to 13,000 horses.*

Not only are these myriads of animals collected, to the great hinderance of all other business in the surrounding parishes and streets; but the scene of filth caused thereby, the overpowering miasmata, the savage conduct and exclamations of the drovers, the cursing and swearing of their men, the lowing and bleating of the affrighted, parched, and exhausted animals, goaded into narrow folds, and panting even for air; the incessant recurrence of drunkenness, confusion and riot among the hosts of butchers and sales-

* It is calculated that the value of the cattle, sheep, &c., sold at Smithfield, amounts to £5,000,000 annually. (Youatt's Veterinary Medicine.)

men's attendants, in the adjoining public houses and in the streets ; and all this occurring for the most part in the night, baffles even an attempt at description.

Then comes the morning, and with it the dispersing of the same herds and flocks over all London : the disorder and confusion hitherto confined to Smithfield, now spreads through every street ; whole trains of coaches, omnibuses and wagons, are stopped by bullocks and sheep, choking up the greatest thoroughfares ; often do the poor animals, overheated, and faint with thirst, rush towards a gutter of liquid filth, and drain it of its black and putrid contents, often do they drop and die in the streets from ill-usage and exhaustion, and frequently are they crushed and destroyed by the wheels of heavy-laden vehicles, and so the butcher's knife is cheated of its victim !

These are some of the evils attending the cattle markets in London ; but they are unimportant when compared with others emanating from the same source, and operating against the health of the town. The filth

produced by the incessant ingress and presence of such immense herds, is very great, and the air is not improved by the exhalation from the animals even while alive.

The most flagrant nuisance, arising out of the custom of holding this market in London, is unquestionably the consequent practice of slaughtering the animals in the town.

There can be but one opinion as to its impropriety, and injury to the health of the inhabitants; and, when we consider that scarcely one butcher out of twenty has any thing more than a cellar under his shop, both for the purpose of keeping alive and killing his beasts and sheep, it will not be difficult to understand how deleterious such premises must be to every one living near them.

Not only are the premises miserably confined and unsuited to the purpose of slaughtering, but the flatness of the ground, and the consequent level of the drains, render the removal of the blood, and other animal refuse, a process of great uncertainty, if not impossibility. The blood, which is poured

into the drains beneath the houses in London, is not carried forward to the Thames, but lodges in putrid, coagulated masses, near to the gully hole into which it is thrown.* The cleansings of the slaughter-houses are added to this, and thus the material, forming so valuable an adjunct to the piles of manure in the country, is scattered, in London, to the poisoning of the health of the inhabitants. A person cannot pass through Warwick-lane, Newgate-street, without being sensibly affected by the effluvia of slaughter-houses in the neighbourhood of Newgate market.

Nothing but a sordid spirit on the part of the corporation of the city of London has prevented this evil from being removed ; and here again we see the mercenary interest of the few triumphing over the welfare of the many.

Thousands of bullocks, and tens of thousands of sheep, are goaded through the streets

* A bullock yields about six gallons of blood, a calf six quarts, a sheep five quarts, a pig one gallon ; so that about 12,000 tons are drawn annually. A portion of this is sold to the sugar refiners, but a large proportion is poured into the drains.

to the very centre of the metropolis, all of which are slaughtered in the town.

This is an acknowledged evil, affecting every one more or less, but no one in particular, and the consequence is the nuisance is suffered to remain ; in this instance, as in the case of burying the dead, the Government has displayed its remissness of not throwing its protecting arm over the metropolis, and preventing animals of all kinds from being either brought into the town for sale, or being slaughtered in it. What is to hinder our having cattle markets and abattoirs in the suburbs, as is the case in many other capitals in Europe ? is not the air sufficiently defiled by the presence of nearly two millions of people, without bringing huge herds and flocks into it as well ? and are not the drains foul enough, without pouring into them thousands of tuns of over-heated blood ? It is disgraceful to the city of London that it has lent itself, from mercenary motives, to maintaining one of the greatest nuisances that ever poisoned a town.

Cattle markets and abattoirs should be

established either at one or more places in the neighbourhood of London, and cattle should not be permitted even to pass through the town, except during the night. It has been urged that the adoption of such a regulation would add a penny per pound to the price of meat ; it does not appear how such an increase in the price would be occasioned : but, admitting that it would be the case, the inhabitants would unquestionably be the gainers notwithstanding.

The markets and abattoirs of Paris are admirably arranged, and afford a most encouraging example for our imitation.

The custom of keeping large numbers of cows in close confined sheds, is another flagrant nuisance in London, to say nothing of the meagre quality of the milk supplied by animals kept in an artificial and unwholesome state.

A large quantity of milk is brought twice daily to London from the country, but the greater proportion is furnished by cow proprietors, of whom there are many in London. Some of them have several hundreds of cows,

and others are said to have more than a thousand, all housed on one confined premises.

It needs no extraordinary sensibility of the olfactory nerves to discover if one of these establishments be in the neighbourhood ; the odour is recognised several streets off from the place where the animals are confined, indeed, it scents the atmosphere to a great distance in the direction of the wind. It is not the ‘ ambrosial breath’ of the cow that is experienced, for that would not, perhaps, be considered objectionable, but it is the filth that is accumulated in the sheds where the cows are so closely packed, and which is not only highly offensive and injurious to the inhabitants, but is extremely prejudicial to the animals themselves.

It is not an uncommon thing, in passing along the streets of London, to experience a current of hot offensive effluvia issuing from a shed or some *underground* cellar, in which a great number of cows are confined ; and the baneful effects of this foul atmosphere are sufficiently apparent in the squalid countenances of the persons who attend on them.

It is computed by the writer of the Picture of London, that upwards of 10,000 cows are kept in London, and it is not difficult to understand how great a nuisance is occasioned thereby : they are fed chiefly on dry fodder, which is another reason why milk is of inferior quality.

The animals are also supplied with grains, and other refuse from the distilleries and breweries, and the sour odour of this kind of food is very perceptible, rendering the air impure and stifling, not only in the depositories at the cow establishments, but in the streets through which it is conveyed. There is consequently a triple nuisance occasioned by the practice of keeping cows in London, viz. the odour of the food, the bad quality of the milk, and the Augean condition of the sheds and yards wherein the animals are confined.

It has been observed that large quantities of milk are brought from the country twice a day, and therefore there is neither difficulty nor inconvenience sufficient to prevent the practice becoming universal : here again

there is a call for legislative interference ; the nuisance is acknowledged, but it will never be abated as long as interested individuals are permitted to make a small profit by polluting the atmosphere, and vending a spurious fluid under the name of milk.

The milk, bad as it comes from the cow, is destined to undergo further mystifications, for it is often proved to contain magnesia, chalk, and other compounds, besides a copious addition of water. It seems that the baneful effects of this vitiated custom are plainly traced in the great difficulty of rearing healthy children in London ; and when we consider that this their natural food is *produced* in an unwholesome state, and afterwards *adulterated*, we cannot be altogether at a loss to account for the great mortality among children in London—greater in proportion than among adults, as compared with other places in England.

If the London child be nourished on unwholesome food, in addition to its being exposed to the many other causes prejudicial to health, it is not difficult to understand

that the same degree of vigour will never be attained in town that would be acquired out of it.

There are other establishments, of great magnitude and public utility, conducive, no doubt, to the wealth and general interests of those immediately connected with them, but which, being in the midst of so large and populous a city as London, are unquestionably prejudicial to the health and welfare of the inhabitants, and should, as far as circumstances would permit, be prohibited in the metropolis. There are Gas works, Soap, Sugar, and Candle manufactories, Breweries, Distilleries, and Foundries.

The principal cause of complaint against these premises is the frequent vomiting forth of dense volumes of black suffocating smoke, filling all the adjoining streets with stifling fumes and darkening the very atmosphere. The effluvia occasioned by the former of these works is well known as being injurious to health, and it is unfortunate for the inhabitants that establishments of this description are not kept at a proper

distance from their habitations. The contamination of the atmosphere by repeated inhalations of nearly two millions of persons cannot easily be avoided, neither can the half a million of fires in private houses be suppressed ; but the wholesale poisoning of the air by these works might be prevented, without any public inconvenience being occasioned.*

Many persons think that the smoke is beneficial rather than prejudicial to health in London, on the idea, probably, that it covers all other offensive fumes and odours : this notion cannot be founded in truth ; for even admitting that it conceals from the senses innumerable effluvia that would otherwise have caused disgust, it is in itself most prejudicial to animal, as well as to vegetable life. It need only be remarked that smoky places are invariably the dirtiest and the most unhealthy, whence it is easy to discover the true bearing of the facts of the case.

Fevers and other epidemics have ever

* In a word, all public works should consume their own smoke, or be prohibited in the Metropolis.

been most severe in this country in dirty and smoky places; and when the Cholera was in England in 1832, Bilston in Warwickshire, which is always darkened with smoke, suffered in a much greater degree than any other town.

Moreover, smoke is prejudicial in another way,—Light is essential to vigorous health in both the animal and vegetable economy, but the enlivening rays are effectually excluded in London, for days together, by the volumes of thick smoke which hang over the town.

The practice of burying the dead in cities and towns is most injurious to the public health, and it is astonishing that it should be kept up in a city like London, where certainly enormous expense has been incurred, and gigantic works accomplished, for the sake of salubrity and general improvement. It has long been a custom to attach burying grounds to churches in Christian countries, but when streets and towns have grown up around them, the public convenience and safety, together with the decency due to the

human remains, have suggested the expediency of having a depository for the dead at a distance from the habitations of the living. Most continental cities have their cemeteries in the suburbs,—but the tenacity of the English to ancient customs, even though they are admitted to be bad, has kept up this most obnoxious and loathsome custom in the midst of this densely peopled metropolis.

Not only are the Church-yards constantly undergoing the process of *turning*, like piles of manure, but the churches themselves in many parishes in London, are little better than charnel houses, the dead being deposited in frequent succession in vaults and graves under the aisles and pews. There are in the metropolis 153 parishes, to most of which are attached burying grounds, used as places of interment to this day. Within some of the metropolitan churches, there are regular graves under the aisles, the same as in church-yards; in others, pits or vaults (not bricked, but of earth), the entrance into which is from within the building. In

others the vents of the vaults are actually within the church.

Thus in various ways pestilential effluvia are sent through the building. A candle will not always burn in the vaults beneath, and it is sometimes necessary to leave the entrance to them open for several hours before it is considered safe to enter. Mr. Carden, in his petition to Parliament on the subject of a general cemetery, speaks of one church in which he understood that the use of fires had been abandoned, owing to the increased effluvium which was found to arise from the vaults under the church; and in another part of the petition, this same gentleman, who has given much attention to this subject, states that, in the year 1825, he entered the vaults of St. Dunstan's church, Fleet-street, and found that the dead were there deposited in coffins of wood only, and saw the coffins below crushed by others placed upon them, and the remains of a recently interred corpse forced in part out of the coffin, and in a state of decomposition too disgusting to be described.

The invariable use of lead coffins might, in some measure, prevent such effects as we have stated ; but it has been ascertained that, in the vaults of a city church where lead coffins were always required the air had become so vitiated that lighted candles, attempted to be carried in, were immediately extinguished.

It appears, in fact, that no arrangements can make it cease to be an evil to bring together the bodies of the dead where the living inhabit and congregate ; under the best arrangements which might, by careful vaulting and excluding all communication with the interior of the church, keep it tolerably free from the taint, still the surrounding air must be contaminated by the effluvia escaping through the open gratings made to render the vaults in any degree fit for entrance : thus effecting no more than a transference of the nuisance from the church to the church-yard.

But the church-yard itself is a great nuisance, particularly when closely hemmed in by houses on all sides, as is usually the case

in London. The burial grounds are of such limited extent, and have been so long in use, that instances are related in which a lighted candle will not burn when placed in a newly opened grave or even upon the thrown up soil.

In large towns, says the "Quarterly Review," and more especially in the metropolis, it has become more difficult to find room for the dead than the living.

The Commissioners for the Improvements in Westminster reported to Parliament, in 1814, that St. Margaret's church-yard could not consistently with the health of the neighbourhood be used much longer as a burying ground, for that it was with the greatest difficulty a vacant place could at any time be found for strangers; the family graves generally would not admit of more than one interment, and many of them were too full for the reception of any member of the family to which they belonged. There are many churchyards in which the soil has been raised *several feet above the level of the adjoining street* by the continual accumula-

tion of mortal matter, and there are others in which the ground is actually probed with a borer before a grave is opened ! Many tons of human bones are every year sent from London to the North, where they are crushed in mills contrived for the purpose, and used as manure. Yet with all this clearance, the numbers of the dead increase in such frightful disproportion to the space which we allot for them, that the question has been started whether a sexton may not refuse to admit iron coffins into a burial place, because by this means the deceased take a fee simple in the ground which was only granted for a term of years !*

Upwards of 45,000 persons die in the course of the year in London ; and a large majority of the bodies is interred in wood coffins only in common graves in the various burying grounds. It is easy to imagine how unwholesome must be the atmosphere in the neighbourhood, and even at some considerable distance from these exhaling heaps of scarcely decomposed animal matter. Many

* Penny Mag. No. 150.

parishes it is true have their burying grounds at a distance from the parish church, and sometimes in the suburbs; but the town extends itself so rapidly that this means, instead of remedying the evil, only transfers it from one place to another. The exhalation from the earth is at all times considerable, but when the soil is newly turned the process goes on at a much more rapid rate, and the exhalation itself is much more abundant.

What rank hot-beds then of poisonous effluvia must the London burying-grounds be! and yet the practice of packing the dead in these confined enclosures is pertinaciously adhered to to the present day; the evil calls loudly for legislative interference.

If any further arguments were necessary to shew, not only the imprudence, but, the danger, of continuing to deposit the dead in the midst of the living, it would only be necessary to refer to the fact that contagion is frequently found to extend from the body after death. It was remarked in

1832 that the persons who had been engaged in placing in coffins those who had died of Cholera, and even those who had only followed the corpse to the grave, were, in very many instances, the next victims to the disease ; and the post mortem examination of a human body not unfrequently proves fatal to the medical man who is unfortunate enough to wound his hand during the operation.

The injurious effects of interring the dead in populous cities are acknowledged, and one of the chief objects of attainment in improving the salubrity of the metropolis is the absolute prohibition of interment, not only in, but within a certain distance of, the town.

Forty - five thousand dead bodies are buried in London in every year ! Is it necessary to comment on this pernicious mode of fattening the soil ? Is it not enough to state the fact that, every year, thousands of tuns of decomposing human remains are deposited within a few feet of the surface of the ground ? and in very many instances

are not allowed to rest long enough to turn to earth before they are again tossed up to cover the accumulating dead—and, verily, the “dead bury their dead.”

Interment ought to be strictly forbidden near the habitations of the living ; the effluvia necessarily evolved from the decomposition of animal matter is most injurious to health, and should be cautiously avoided. Were the climate of England a few degrees warmer, not only would the health be injured, but the senses disgusted ; in which case, in all probability, the practice would never have been established. This custom of burying the dead in the metropolis is one of the greatest evils of which the inhabitants have to complain ; but it is fortunately one which admits of being readily corrected, by the formation of cemeteries in the suburbs of the town.

Not only is it for the advantage of the living, but far more respectful towards the dead, that their last earthly resting-place should be in a sequestered spot ; whereas, in London, the grave yawns by the side of a

noisy bustling street, and separated from it only by an iron railing. The sublime funeral service, ere it has well issued from the clergyman's lips, is drowned by the discordant and often profane babble of a vulgar crowd; no one utters "requiescat in pace," but the remains of a friend are lowered into their narrow couch, soon to be disturbed by reckless hands clearing a grave for other victims of death.

Nor do the rich share a much more becoming fate, they are stowed away in capacious vaults under churches, the coffins being piled one over another even to the arched roof, the object, apparently, being to pack the greatest number in the smallest possible space; and, in nineteen cases out of twenty, there is neither urn nor tablet, nor any monument whatever, to record that there ever had been such a person as the deceased.

Anciently none were buried in churches or church-yards; it was even unlawful to inter in cities, and the cemeteries were without the walls. Among the primitive Christians these were held in great veneration.

It even appears from Eusebius and Tertullian that, in the early ages, they assembled for divine worship in the cemeteries. Valerian seems to have confiscated the cemeteries and other places of divine worship, but they were restored again by Gallienus.

As martyrs were buried in these places, the Christians chose them for building churches on, when Constantine established their religion; and hence some derive the rule which still obtains in the Church of Rome, never to consecrate an altar without putting under it the relicts of some saint.*

In Asia the cemeteries form a beautiful feature in the appearance of the country, as well as in the character of the people; in China, Hindostan and Persia, they form ornaments worthy of imitation by more civilized nations; while in most of the countries of Europe, in Spain, Portugal, France, Italy, Germany, Turkey, and Russia, they form gardens of perpetual verdure, where the eternal bloom is em-

* Encyclopædia Britannica.

blematical of the departed spirits, and the fragrance marks the never-dying affection of the surviving friends.

On the Northern shores of Africa, and in the wilds of America, cemeteries are held sacred, and kept with great care, and it remains for civilized England to blush at her deficiency in one of the most honourable and most beautiful characteristics of humanity.

In England, unfortunately, the highest honours are awarded to wealth ; avarice is engendered thereby, and a mercenary spirit pervades all classes, to the extinction of many good qualities during life, and ending in a callous indifference to the remains of friends removed from the arena of action.

The propriety, nay even the necessity, of having cemeteries at a distance from towns, though felt and acknowledged in this country, yet no legislative encouragement or assistance has been afforded for so desirable a project ; and in this respect, as in some others, the government has exhibited a culpable indifference to the health and comfort

of the people, and more particularly to the inhabitants of the metropolis ; but British spirit has ever taken the lead, while government has followed at a respectful distance ; the enterprise of individuals led to the formation of roads, and to the use of stage coaches, and to the construction of docks and canals. James Watt nursed the Herculean infant *Steam*, and already the giant's strength knows no bounds. Windsor fostered the flickering flame, and night is now turned into day by the refulgence of gas. Railroads are laid down by private companies, by which a journey occupying our forefathers a day, may now be accomplished in a single hour ; these and numerous other triumphs of science and art have been achieved without the government subscribing a sixpence towards the undertaking, or remunerating the spirited projectors afterwards ; whereas in Germany, France, and other continental countries, such men are raised to independence, and are ranked among the nobles of the land.

The necessity of providing cemeteries out

of town has led to the formation of private companies for that purpose in some places. A company was formed in London in 1832 for this purpose; a piece of ground, measuring fifty six acres, was purchased at Kensall Green, two miles distant from the town, in a north-west direction; yew trees, laurels, and other evergreens, with an abundance of flowering shrubs, were planted, and walks were cut with great taste. No sooner was an opportunity offered of affording a real place of repose to the remains of a departed friend than it was eagerly embraced by the public, and marble obelisks and urns began to rise among cypresses in endless variety.

Other cemeteries have been projected in the suburbs of London, but as yet none but that at Kensall Green has been opened;* these peaceful repositories for the dead have also been formed at Liverpool and some other towns in England, while the custom

* Five or six have been commenced; 1, The Kensall Green; 2, the Highgate; 3, the Peckham; 4, the South Metropolitan, have already obtained acts of parliament for their formation.

of strewing and planting the graves with flowers has prevailed in Wales from time immemorial.

Can a person thread his way through flowery labyrinths and among marble monuments of departed worth without experiencing a feeling of awe combined with pleasure! Could an Englishman ramble through that Paradise of tombs *Père la Chaise*, near Paris, without feeling a sensation amounting almost to supernatural delight! Could he penetrate the copse to some secluded spot and see the sculptured vase entwined by woodbine and shaded by jessamine, raised to mark the resting place of some beloved child or revered parent! Could he behold the stately marble column erected in memory of the hero of a hundred battles, or let his mind wander back to the ages of chivalry and romance while contemplating the beautiful gothic sepulchre of Abelard and Heloise! Could he look on these bright monuments, honourable alike to the living and the dead, without feeling his spirit shrink within him at the recollection of the mock

ceremonials he has witnessed in his own country ; and with these examples before our eyes, shall we not embrace a custom so pleasing to a reflecting mind and so creditable to humanity ! It has been urged that the pitiful pretext of the clergyman being deprived of his surplice fees has led to the strongest opposition in some quarters to the adoption of this mode of sepulture. If such a feeling exist, our spiritual pastor in life and consoler in death would have little claim to the high character a christian minister should possess.*

It is to be hoped that not only prejudice, but every substantial obstacle will speedily be removed, and this country will add another to its many beautiful features by the universal adoption of cemeteries at a distance from the habitations of the living, as places of interment.

* At the time these pages were passing through the press, the Bishop of London made a speech in the House of Lords against the formation of Cemeteries ; and employing the very argument here reprobated, presented a petition that counsel might be heard at the bar against a measure of the kind then before the legislature.—*See Debates in the House of Lords, June 13, 1837.*

The manner in which the Romans took leave of their friends was extremely affecting. "Vale, vale, vale! nos te ordine quo natura permiserit, cuncti sequemur!" Then, wishing the earth to lie lightly on their relicts, they departed; the monuments were then decorated with chaplets and balsams, and garlands of flowers.* To this affectionate custom, Virgil alludes in the fifth book of his immortal poem, where Æneas sprinkles his father's grave with purple flowers, and in the sixth, where the poet exclaims

"Heu miserande puer! si qua fata aspera rumpas
Tu Marcellus eris. Manibus date ilia plenis;
Purpureos spargam flores, animamque nepotis
His saltem accumulem donis, et fungar inani
Munere."†

There is something awfully sublime in contemplating a final resting place at the conclusion of our earthly pilgrimage. "O lay me, ye that see the light, near some rock of my hills; let the rustling oak be near; green be the place of my rest, and let the sound of the distant torrent be heard."‡

* Philosophy of Nature, vol. i. p. 92.

† Liber vi. L. 882.

‡ Ossian.

CHAPTER XI.

Deficient supply of Water in London—Public Baths scarcely known, though very desirable—Baths of the ancients—Clean habitations of the Dutch—Quantities of Water supplied by the eight Water Companies—Parliamentary reports by Drs. Roget and Bostock, and Messrs. Brande and Telford, on the subject—Impurities of Thames water, as supplied to the town—Also of that of the New River—Nothing done in reference to the Report—Comparative prices charged for water by the Companies—The Thames the great source of supply—Cutting of the New River—Plans suggested to improve the supply from the Thames—Erections of fountains in the squares and streets—The fountains at Versailles—Difficulty of sinking wells in London—Rain water scarce and unavailable.

WATER is almost as essential to living beings as the atmosphere they breathe ; the want of it is followed by great disturbance of the animal economy, and, if the supply be altogether withheld, death speedily ensues.

One of the causes prejudicial to the health of the inhabitants of the metropolis is the deficient supply of this invaluable element.

It is admitted that great, and even extraordinary means have been adopted to supply the metropolis with water; the enterprise displayed in this service is as bold as it is laudable. The machinery employed in it is as gigantic as the works are extensive, and the quantity of water furnished is prodigious, but the question still remains—Is the supply sufficient? Certainly not. There is not a district in London, there is not a street, or even a house, in which, if the water be not scarce, it is certainly not in super-abundance.

Although it be carefully kept, and not used in greater quantities than is absolutely necessary, the cisterns, in summer, are frequently dry. In this country we are in the habit of considering the least check in the supply or use of water a privation; and there can be no doubt that, for the sake of health and comfort, it should be *lavished*, rather than meted out. In London, in par-

ticular, where the buildings and population are so crowded, and where every thing so soon becomes soiled, an abundant supply is more particularly required ; instead of which, the quantity supplied is comparatively small.

The deficiency is greatly felt in the impracticability of forming public baths ; for these establishments, considered as luxuries in most other cities of Europe, are much wanted, as essential to health and cleanliness, in London. The human body requires, in all climates, frequent ablutions to keep it in wholesome condition ; but nowhere do circumstances conspire to render the salutary custom of bathing so necessary, as in this metropolis. Nothing, however, was attempted by the public authorities to encourage so salutary a custom, but the culpable indifference displayed by these has, of late years, been partially made up by the public spirit of private individuals, who have established baths of great size in different parts of the metropolis.

Bathing has been considered essential to

health in almost all countries, and at almost all ages ; it is practised in cold as well as in hot climates.

Many nations hold the bath as one of their chief luxuries, others value it both as a luxury, and as conducive to health. Among some people bathing is enjoined as a religious exercise, whilst water is considered sacred, and is used not only as a physical, but as a type of moral ablution. In ancient Rome, the baths, both public and private, were on a most extensive scale, and though it be now 1500 years since the rays of her glory have departed, the magnificent baths of Dioclesian remain at this day as monuments at once of the estimation in which bathing was held, and of the greatness of that wonderful people.

Houses, trees, cattle, drapery of all kinds, clothing, and even the skin itself, everything in fact becomes soiled and contaminated by the impurities in the atmosphere in London, and it is remarkable that measures have not been adopted to counteract the baneful effects of this evil.

Instead of a smaller supply, the inhabitants of the metropolis require a larger quantity of water (for the necessities, to say nothing of the luxuries of life) than people in the country.

Holland is not naturally a healthy country, but the inhabitants splash the water about in all directions, and by the strict observance of cleanliness in the houses, Amsterdam is rendered a much more salubrious city than might be expected.

In London the want of water is severely felt, particularly among the lower classes, in obviating the defiling influence of the impure atmosphere, and great as is the inconvenience of keeping habitations clean, the difficulty of obtaining fresh, white, wholesome linen is still greater—indeed the thing is altogether impracticable, and unless the laundress carries on her business at a considerable distance from the town, it is in vain to hope for comfort in this portion of dress. Cleanliness has been said to be akin to godliness, but a scanty supply of water

and a foul atmosphere militate sadly against this quality in the British Metropolis.

The metropolis is supplied by eight Water Companies. The following are the quantities of water they supply daily, its source, and the number of houses supplied.

	Gallons.	Houses.
New River	13,000,000	67,000
East London	6,000,000	42,000
West Middlesex	2,250,000	15,000
Chelsea	1,760,000	12,000
Grand Junction	2,800,000	7,700
Lambeth	1,244,000	16,000
South London	1,000,000	10,000
Southwark	720,000	7,000

According to the Parliamentary paper in 1828 from which this extract is taken, the three last mentioned companies established on the Surrey side of London had no reservoirs, but forced the water from the Thames in London, opposite their respective works, direct to the houses they supply.

The report furnished to Parliament was drawn up by Dr. Roget, Mr. Brande, and Mr. Telford; Dr. Bostock, who superintended the analysis of it, mentions that, as

the Thames approaches the metropolis, it becomes loaded with a quantity of filth, which renders it disgusting to the senses, and improper to be employed in the preparation of food. It is further mentioned in this report, that from various enquiries respecting the state, purity, and general fitness for domestic use of Thames water, it appeared to be proved to the Commissioners, that the quality of the water within the London district had suffered a gradual deterioration within the last ten or twelve years. This opinion is founded on the disappearance of fish from those parts of the river,—on the circumstance that the eels imported from Holland can now with great difficulty be kept alive in those parts of the Thames, where they were formerly preserved in perfect health.

Statements have been made respecting the insalubrity of the water supplied by the companies. It is obvious that water receiving so large a proportion of foreign matter as the Thames, and so impure as to destroy fish, cannot, even when clarified

by filtration, be pronounced entirely free from the suspicion of general insalubrity; nor does there appear any grounds for assuming the probability of an improvement in the state of the water drawn from the London district of the river.

After speaking of the New River also containing impurities, and of persons often going into it before it reaches London, for the purpose of bathing, the Commissioners go on to observe, that great benefit would result if the inducement to bathe in the New River were superseded by the establishment of *Public Baths*, and it was stated in evidence that the New River Company have voluntarily offered to furnish sufficient supplies of water for a purpose of such general utility.

The Commissioners thus conclude their report. "Taking into consideration the various circumstances to which we have now adverted, together with the details of evidence by which they are proved and illustrated, and also the facts derived from our own observations and experience, we are of

opinion that the present state of the supply of water to the metropolis is susceptible of, and requires improvement ; that many of the complaints respecting the quality of the water, are well founded, and that it ought to be derived from other sources than those resorted to, and guarded by such restrictions as shall at all times insure its cleanliness and purity.”

Seven years have elapsed since these eminent persons thus strongly recommended the adoption of measures to increase the quantity, and improve the quality of the water, supplied to the inhabitants of the metropolis, yet nothing has been done toward the accomplishment of so necessary an object.

After what has been said no one can doubt the fact of the supply of water to the metropolis being deficient for the purposes, not only of health, but of comfort and cleanliness ; and it is to be regretted that the Parliament itself, sitting half the year in the midst of this great city, and consequently witnessing the extent and the effects of the deficiency, should neglect so important a part of its duty to the public, as not to pro-

vide an immediate and permanent remedy for so great and so growing an evil.

The supply is decidedly deficient all over the metropolis, but the town is divided into districts at the caprice of the companies, who have formed a combination amongst themselves, so arbitrary in its principles, that the public are entirely dependent on the monopolists, as to the quantity and quality of the water, as well as to the price they pay for it.

It is curious to observe that the people on one side of a street pay nearly three times as much for a measured quantity of water as the inhabitants on the other side. For instance, the East side of Tottenham Court Road is supplied by the New River Company, which charges 17s. 1 $\frac{1}{4}$ d. for the 1000 hogsheads of water, while the West side is supplied by the West Middlesex Company, which charges £2 5. 6. for the same quantity.

The following table, taken from a Parliamentary Return made in 1834, shews the number of houses supplied by each Company, the total quantity of water supplied by each, the quantity for each house on an average, and the price charged.

Companies.	Houses and Buildings supplied.	Total quantity of Water supplied yearly in Hogs-heads.	Average daily supply to each house in gallons.	Average charge per 1000 hogs-heads.
New River	70,145	114,650,000	241	17s. 1 $\frac{3}{4}$ d.
East London	46,421	37,810,594	120	28 0
West Middlesex	16,000	20,000,000	185	45 6
Chelsea	13,892	15,753,000	168	29 0
Grand Junction	8,780	21,702,567	350	24 1
Lambeth	16,682	11,998,600	124	24 8
South London	12,046	not known.	100	
Southwark	7,100	7,000,000	156	21 0*

* See Porter's Parliamentary returns, and M'Culloch's Dict. Commerce.

The River Thames is the source from which London is supplied with water, for although the New River Company have a supply from another direction, they draw large quantities from the worst part of the Thames — at Queenhithe, in the centre of the city, by means of two very powerful steam-engines — and this no doubt is distributed to the inhabitants — under the denomination of New River water.*

* The profits of some of the companies have been immense. In 1827 the net profits of the New River Company were £36,453, of the East London £31,392, of the West Middlesex £24,000. A share in the New River Company, which originally cost £500, has been sold for £13,000 !!!

The New River was commenced by the Lord Mayor, commonalty, and citizens of London, in 1606, the third

Several means have been suggested of improving the supply. One plan was to consolidate the various Companies, and to levy a general rate on the inhabitants.

year of the reign of Jas. I. After the work had proceeded for some time, they began to be apprehensive that it would be a losing speculation, and abandoned it entirely; in 1610 Sir Hugh Middleton, an enterprising Goldsmith of the city of London, undertook to carry on and complete the undertaking at his own expense, and it was transferred to him accordingly, in 1612. Sir Hugh soon found that he had taken up an enterprise that he was not equal to, and consequently asked the assistance of some of his friends. These joined him, and thus the first company was formed.

The work went on prosperously, and the king, in the following year, with a view of encouraging so important a measure, and partly no doubt with a view to his own individual interest, offered to take half the concern off their hands, disbursing them in the same proportion for the expense already incurred. They accepted his offer, and on the water being brought to London, in 1619, he granted them a charter of incorporation; the company holding thirty-two shares, and the king the same number, the profits being divided equally between the king and the company. Chas. I., in the seventeenth year of his reign, gave up his title to the property, on receiving for himself and his heirs, £500 per annum in lieu thereof. The shares now yield an annual profit of £43,200, or £600 a share.*

* From Revising Barrister Keene's judgment, on right of voting for members of Parliament in virtue of these shares, delivered Nov. 9., 1836.

Some recommended the establishment of new Companies, and others proposed boring the ground in various places in every street, and drawing a supply on the spot.

In whatever way the object is accomplished, one thing is clear, namely, that great expense must be incurred.

The subject is one of such importance that it should not be left to jobbing individuals, or trading companies, and it is monstrous that a few persons should have the power of parcelling out the metropolis, and selling water to the inhabitants at any price they choose to demand.

The first plan just now mentioned, is beyond doubt the only one that would meet the daily increasing public demands; the management, moreover, of so important a trust, should not be left to irresponsible persons, but the general board of directors or commissioners, or whatever they might be designated, should be amenable to government, or to the public at large; unless this consolidation is effected, or an equalization of the supply and charges established, there

will never be the quantity of water supplied which is necessary for the health and cleanliness of the town, to say nothing of the comfort and luxuries of the inhabitants.

With regard to the source whence the water is to be obtained, there is now no doubt but that, willing or unwilling, we must fall back on the broad and never failing river that comes spontaneously to our hand, and there is no reason whatever why Thames water should not be universally used, as it is already to the extent of more than two-thirds of the whole quantity supplied, for the “New River” reservoirs always contain a large proportion of water drawn from the Thames.

It would be desirable that one or more powerful steam engines should be erected on the banks of the Thames, at the distance of some miles above London, and that water should be poured into the town in any quantity that might be required.

It would be desirable that, in addition to the cisterns in private houses being kept full from this source, fountains should play

in every square, and jets spout into stone basins in every street, all of which water should be at the disposal of the inhabitants, or should be allowed to run to waste; for, even by running to waste, as it would be considered by some persons, it would contribute most materially to the health of the town, by clearing away all offensive matter from the subterraneous passages.

It is surprising that, in this metropolis, where there is as great a necessity for copious supplies of water, as there is in the cities of Persia and Turkey, the necessity however arising from different causes, that we should be so far behind these less civilized states in the establishment of fountains, baths, and public reservoirs. During certain months of the year there would be little demand for fountains, but there is a long season in which heat and dust, and a murky atmosphere, render London almost uninhabitable. During this period, fountains and baths would be luxuries beyond all price, not to mention how largely they would contribute to the public health.

The palace gardens at Versailles are adorned by numerous fountains of great size and variety. They are tastefully distributed among the trees and shrubs; nymphs, sea-horses and dolphins, elegantly fashioned in bronze, forming the jet pipes of these beautiful water-works. It is said that there are fifteen hundred of these jets in the gardens, they all play at once at certain seasons of the year, when the effect is astonishing. The quantity of water used is of course immense, and is supplied by an engine on the River Seine at Marly, distant from Versailles about five English miles.

How greatly would the beauty of our parks be increased, were there stately fountains playing at the extremities of the various avenues and drives, and when we consider the luxurious disposition of the present age, and the ample resources of the government and of the people; it is remarkable that this beautiful and useful ornament has not been introduced long since.

Having such an abundant supply of water at hand, and the public mind being con-

vinced of the advantage and pleasure to be derived from its application in this way, we may hope, ere long, to see the plan adopted.

The suggestion to sink wells in the streets appears feasible, but it is not easy to carry into execution. It has been mentioned in a former chapter, that the bed of clay lying under London and the surrounding neighbourhood, is for the most part very thick, as much as one, two, or even five hundred feet, and unless a well be sunk *through* this, a supply of good water cannot be insured; that drawn from any depth short of passing through the clay being often ferruginous and otherwise hard; again, if wells were universally sunk through the clay, even then the supply would not be equal to the demand, for wells of this depth have been dug in most of the London breweries, and it is not a matter of unfrequent occurrence that the supply fails; it is even stated that the brewers are compelled to accommodate each other in this respect by not drawing their water at one and the same time, whence it would appear that the reservoir of water

below the metropolis is not equal to the wants of such an enormous population on the surface.

It has been already mentioned that public baths on a large scale have been established by private individuals, and they are much frequented, which shews at once that nothing but opportunity is wanting to introduce the salutary custom of bathing, if not to make the practice universal.

It would be a superb spectacle to see magnificent fountains playing in our parks, and the water tumbling into spacious baths below.

It is rather curious that rain water is seldom collected in London, but is generally allowed to run off into the gutters and drains; this can only be accounted for by supposing that this water, naturally scarce, is so charged with soot and other impurities from the air and roofs of the houses, that it is rendered useless for domestic purposes.

CHAPTER XII.

Adulteration of Food—Impurity of the Water—Chemical action of Water on Lead Cisterns—Formation of Carbonate of Lead—Its effects on the Animal Economy—Alum in Bread—Its effects on the System—Quality of Animal Food sold in London—Quantity of Animal Food consumed in London, Brussels, and Paris, by each individual—Unwholesome Fish destroyed at Billingsgate—Unwholesome Butter and Vegetables.

THE quality and quantity of the food consumed by the inhabitants of London, form causes prejudicial to health; and it will not be difficult to shew that they are so. If, for instance, we take into consideration that very essential article, *Water*, we shall find that, independent of the purity of its source, it comes to us in a very questionable shape. The Thames and the New River are the great sources of the supply. In the parliamentary report just referred to, it is stated that the Thames water is loaded with

impurities, that it is unfit for use, and that, moreover, fish cannot live in it. The report also states that the New River water contains impurities, and that it is rendered objectionable by persons often going into it for the purpose of bathing. Admitting, however, that by filtration, and allowing it to stand in reservoirs previous to use, the water is rendered tolerably pure; another question arises, namely, whether or not the practice of its being received into cisterns of *Lead*, for daily use, is not likely to alter its quality so as to make it injurious to health.

The question stands thus;

The New River water contains 2.25 inches per cent. of *carbonic acid gas*,

The Thames water, rather less;

Carbonic acid acts chemically on lead, forming *carbonate of lead*. This is a white powder, and is insoluble in water; it consequently falls to the bottom of the cistern, but if the water be agitated, much of the powder is held by the water mechanically, and of course carried with it.

The following is the effect produced on the human body by this substance. “The carbonate of lead is a powerful sedative astringent, but it is never internally administered, on account of its poisonous properties. It ever requires to be applied with caution to abraded surfaces. It is the preparation of lead from which *Colica pictorum*, or painters’ cholic, in every instance, arises. The symptoms it produces, when taken into the stomach, are at first not unlike those of common dyspepsia; soon afterwards obstinate costiveness, violent pain and tormina or a sensation of twisting at the navel, supervene; the stomach becomes very irritable, and rejects the food by vomiting, violent purgings succeed, which are temporarily relieved by pressure, the muscles of the abdomen are powerfully retracted, and the umbilicus drawn inwards. In general there is obstinate costiveness, but sometimes diarrhœa occurs, the urine is diminished in quantity, the saliva assumes a bluish colour, and the expression of the countenance becomes dull, anxious, and

gloomy; along with these symptoms the pulse is small, but hard, the respiration laborious; and, if relief be not soon obtained, the attack terminates either fatally in nervous apoplexy, or, more frequently, in paralysis of the extremities.”*

The Carbonate of Lead being insoluble, little of it can be conveyed at a time from the cistern to the human stomach; but, however small the quantity, the daily use of water containing a portion of this substance must prove injurious to the health; many instances are recorded of whole families having been made ill, by drinking water impregnated with this poison,† and when we see how powerful are its effects on the animal economy, we need not wonder at mischievous effects occurring, when the practice of using cisterns of lead is universal.

May not the sallow complexion and paralytic limb, so frequently seen in London, owe their origin partly to this cause, as well as many other nervous complaints

* Dr. A. T. Thomson's *Materia Medica*.

† Accum on Adulteration of Food, &c.

that resist every remedy, until the patient is removed from the metropolis? There can be little doubt but that it is one of the sources of disease in London.

The adulteration of *Bread* is supposed to be carried to a great extent in London, and to be very generally practised. Many persons coming from the *country*, immediately detect the unwholesomeness of the bread, and if they do not discover it by the palate, a few days only are requisite to enable them to prove it by its action on the stomach.

The respectable bakers, and those who use the best flour for the best bread, have no occasion to have recourse to adulteration, the bread being white by virtue of its superior quality, but those who employ inferior flour, use *alum* mingled with it to give it a whiteness that does not naturally belong to it.

The use of alum in the manufacture of bread, or even the possession of it by a baker, is punishable by law, by fines from 10s. to £10.*

* By 1st and 2nd George IV., c. 50. and c. 5.

Notwithstanding the prohibition against the use of alum, it is believed to be very generally employed.

“In the Metropolis,” says Dr. J. Thomson, of Glasgow,* “where the goodness of the bread is estimated entirely by its whiteness, it is usual with those bakers who employ flour of an inferior quality to add as much alum as common salt to the dough, or in other words the quantity of salt added is diminished a half, and the deficiency supplied by an equal weight of alum. This improves the look of bread, rendering it much whiter and finer.” Alum is seldom used internally in medicine. “When taken into the stomach, it causes often a disagreeable and painful sensation at the epigastrium, and, if the dose be large, nausea, vomiting, colic, and purging, but in small doses constipation.”†

If such effects be produced by alum, the constant use of it in our daily food must be highly prejudicial to health, and hence

* Supplement to Encyclopædia Britannica.

† Dr. A. T. Thomson's *Materia Medica*.

another cause of the constitution in London being impaired. It is a very common subject of complaint in the Metropolis, that the bowels become constipated, and it is by no means unlikely that it is occasioned by this circumstance; it seems the more probable from the fact, that such persons as complain in this way, often obtain speedy and permanent relief from the inconvenience, by making use of *brown* or household bread, into which there could be no apparent motive for putting alum. A large quantity of potatoe-starch is also employed in the making of the London bread; no great inconvenience arises from this practice, excepting that constipation is also induced by the ingredient in many persons, while the baker increases his profit considerably.

Another evil grows out of the two former. The bread containing alum, or other impurities, becomes hard, dry, and stale much sooner than that which is genuine; people have generally, therefore, to choose whether they will take new or *very stale* bread, and the

majority prefer the former ; now, were the bread perfectly genuine, its being eaten when new would prove injurious to most persons ; what then must be the effect when, in addition to its being new, it contains a variety of unwholesome ingredients.

The articles of *butchers' meat* and *fish* cannot very well be adulterated, nor have the inhabitants of London any great reason to complain of their quality, provided they deal with respectable tradesmen.

There are generally *three* kinds sold by butchers, *prime*, *seconds*, and *inferior meat* ; and few persons are sufficiently competent to tell whether the beef and mutton they see in the shambles are of the first or second kind ; they are, therefore, obliged to depend on the respectability of the butcher with whom they deal.

There can be little doubt but that the cattle and sheep are often injured by being driven a long distance to market, and being subjected to cruel treatment by both drovers and butchers, so that the inhabitants of London may hail the progress made in steam

and railroads, as a benefit in respect to their food as well as in many other points of view. It is even now common for meat that is slaughtered in *Aberdeen* on Friday evening, to be in the London markets at day-break on the following Monday morning, being brought by the powerful steamers that ply between Scotland and the metropolis.

The English are said to consume more animal food than their continental neighbours; whether this be so or not, it is not easy to decide; but it is computed* by M'Culloch, that, exclusive of pork, poultry, and fish, each inhabitant of London consumes annually one hundred and seven pounds of animal food; while Chabrol calculates the quantity consumed in Brussels to be eighty-nine pounds, and in Paris eighty-six pounds.

Probably we require more carbonaceous food than the Belgians or French, for we see nations vary in this respect according to their latitudes; the vivacious inhabitants of tropical countries often living entirely on

* Dictionary of Commerce.

rice or fruit, while the sleepy Esquimaux feed almost exclusively on flesh or blubber.

It appears very questionable whether or not the inhabitants of London diet themselves in the way most likely to uphold their health; of necessity breathing an atmosphere heavily charged with carbon. They partake freely of animal food and fermented liquors, both of which are highly carbonaceous, the body consequently must be constantly receiving a large supply of this material, whereas it is the perpetual duty of the lungs to throw this off, and to keep the blood properly oxygenized. Finally, if the blood be properly oxygenized, the body is active, and the complexion florid; if not, the animal powers are sluggish, and the complexion livid or pale.

Fresh vegetables, fruit, and slightly acidulated drinks are the antidotes to this depraved state of the system.

Though carbon is a useful element in our food, combined with oxygen it forms a most pernicious gas, destructive of life when inhaled, as occasionally happens when per-

sons sleep in rooms in which charcoal is burning.

Among the lower classes in London, much mischief no doubt arises from their eating of unwholesome *fish*. An immense quantity of this article of food is condemned and destroyed every summer,* and from this circumstance alone, it is not hazarding too much to say that a great deal which *should* be destroyed must find its way into the habitations of the poor, who purchase unwholesome food because they have not the means of obtaining that which is good.

Hence we have a prolific source of disease among that class of people.

The most expensive and variable article of food in London, speaking comparatively of its price and quality, is *butter*, and the reason is sufficiently obvious ; it is brought from a great distance, is a most perishable substance, and consequently is either good, and brings a very high price, or (as is most commonly the case) it is stale and adulterated.

* Through the agency of Mr. Goldham, clerk of Billingsgate.

It is an article of universal consumption, and the great bulk of it used in London is either salt or a mixed compound of *salt*, and what was once termed *fresh*, and still sold under that name. Hogs-lard and mutton suet are beat up and mingled with it occasionally, so that it may be considered one of the articles of food most commonly adulterated.

From its being used in large quantities daily, particularly among children, it unquestionably is a cause prejudicial to the health of the inhabitants. It is a cause, too, that does not easily admit of removal; it is brought from a distance of from fifty to one hundred and fifty miles, almost daily, and a great expense is necessarily incurred.

That, for instance, which sells in Wiltshire or Cambridgeshire for ten pence the pound, sells for eighteen pence in London. Here we may expect great advantages from the establishment of rail-roads.

Vegetables are much prized in the metropolis by all classes, and if they cannot be obtained in good fresh condition—as is the

case with the poor, they are purchased in an acescent, unwholesome state, and lead to the development of many diseases.

Unwholesome fruit and vegetables are consumed in large quantities by the children of the poor; and, at the University Dispensary, many cases of scrophula and tabes mesenterica, as well as numerous skin diseases, were traced to this source.

Not only is the consumption of stale vegetables injurious to health, but they are often allowed to decay in heaps in the markets, lanes, and streets, to become hot-beds of malaria, the exciting cause of various fevers, dysenteries, and other maladies.

CHAPTER XIII.

Abuse of Spirits in the Metropolis—Drunkenness very prevalent a century ago—Spirit Shops more numerous then than at present—Effects on the population—First Spirit Duties—First Licenses—The Gin Act passed in 1736—Hogarth's "March to Finchley"—"Gin Lane," and "Beer Street"—The Mortality in London then one in twenty annually—Burials twice the number of the Christenings—Alteration of Duties—Gradual improvement in the value of Life up to 1821—Lowering of Spirit Duties—Increase of Public-houses—Alteration in their appearance and character—From the Ale-house to the Gin-palace—Quantities of Spirit paying Duty in 1821 and 1831 in England, Ireland, and Scotland—Quantities of Spirit consumed in London in each year from 1825 to 1835—Increase of certain Maladies from abuse of Spirits—Corroborated by Middlesex Lunatic Asylum Report—Impolicy of lowering Spirit Duties—Parliamentary Report on Drunkenness—Adulteration of Gin—The Spirit converted into an acrid Ether—Increase of Pauperism and Crime consequent on abuse of Spirits—Numbers of men, women, and

children frequenting the London Gin Shops—Charges of Drunkenness at Police Offices—Consumption of Malt Liquors—Suggestions to prevent Adulteration of Spirits—Demoralizing influence of the Pawn Shops—Plans for improving the Moral and Physical conditions of the people—Temperance Societies—Opening various Exhibitions—The Abbey and St. Paul's—British Museum—Tower—Greenwich—Woolwich, &c.—Encouragement of Savings' Banks—Formation of Village Greens and establishment of divers rational Recreations—Sir A. Agnew.

THE abuse of spirituous liquors has long been known to be destructive of health, more particularly in London, and the subject has repeatedly occupied the attention of the Parliament, afforded object of ridicule and satire to writers and painters, and proved the source of deep regret to the temperate portion of the community.

A hundred years ago, the inhabitants of the metropolis were grievously addicted to drunkenness (particularly the lower classes), as may be imagined from the fact that there were then three times as many houses open for the sale of spirituous liquors, as there are now, although the town then was a little more than a third of the size it is at present.

The following is an account of the houses of this description in 1736 :—

Inns	207
Taverns	447
Coffee-houses	551
Ale-houses	5975
Brandy-shops	8659
	<hr/>
	15,839*

The population at that time, according to Price, was about 630,000, whereas the quantity of gin consumed annually amounted to 7,000,000 gallons ; on the other hand, the population in 1835† was 1,776,500, and the number of houses of this description did not exceed 5000 ; from which it would appear that there were, at the former period, nine times as many spirit shops in the metropolis as there are at the present time, in proportion to the population.

The dissipation that prevailed was so great, that not only were the industry and morals of the people destroyed, but their health, and even their lives fell a sacrifice,

* Maitland, vol. II. page 735.

† M'Culloch.

so that the burials far exceeded the births, and the population began sensibly to diminish.

This state of things was produced by the repeal, three years before, of an act passed in 1729,* by which a duty of five shillings per gallon was imposed on British spirits, the distillation of which had only recently commenced, nearly all the spirits used in England having been previously received from the continent. The repeal of this duty (in 1733) took place to prevent smuggling, and immediately the dissipation and drunkenness commenced.

The existence and extent of the evil were the subjects of discussion in both Houses of Parliament; Lord Carteret said he had seen the people lying insensible in the gutters, as he passed to the house, and Lord Cholmondeley mentioned the same circumstance; the Bishop of Salisbury said that boards were put up inscribed with, “you may here get drunk for one penny, dead drunk for two pence, and have clean straw for nothing”—!!! And the proprietors of the houses accord-

* The 2nd George II.

ingly provided cellars and places strewed with straw, to which they conveyed those wretches who were overwhelmed with intoxication ; in these dismal caverns they lay until they recovered some use of their faculties, and then they had recourse to the same mischievous potion.*

The price of gin at this time was sixpence per quart ; in consequence of these excesses the GIN ACT was passed in April 1736,† this was the first licensing act, and gave the power to two or more justices to license houses for the sale of spirits, &c.

This act was passed through the House of Commons chiefly by the zeal and philanthropy of Sir Joseph Jekyll, and eventually became the law ; but in their zeal the friends of humanity overshot their mark, for the price of the licence was fixed at £50 per annum, and 20s. a gallon duty was imposed on all spirits.

Smuggling re-commenced immediately, and informations were laid daily, but the

* Hansard's Debates.

† The 9th Geo. II. cap. 23.

informers soon became marked men, and they were pointed at, and pelted in the streets. Lord Carteret said in the House of Lords, that one of them had been hunted through the street like a wild beast, every one shutting their door in his face, and refusing him shelter, and, had he not taken refuge in the house of a member of the Government, residing in Ormond-street, his life would certainly have been sacrificed; and it was mentioned that one person of this description had actually been murdered in the street a short time before.

The act was amended in 1743,* which altered the price of the licence to twenty shillings annually, and lowered the duty of gin to three pence per gallon; the licence was confined to inn-keepers and victualers, who were forbidden to encourage drunkenness. A great improvement took place in the morals and health of the people. Notwithstanding these legislative precautions, the vice of drunkenness prevailed to a considerable extent in the metropolis for several years, particularly

* By 16th Geo. II., cap. 8.

among the lower classes, but the practice does not seem to have been confined to them exclusively; the government did every thing that could be devised to check the evil, but little benefit was produced for a long time, and it was not until 1751 that any improvement began to manifest itself, as in that year Parliament passed an act restraining the *distillation* of spirits, and checking the use of them by additional duties.*

It was during this mania for drunkenness that HOGARTH flourished, and the vice of the day afforded numberless subjects for his humorous brush: the last Scotch rebellion having broken out in 1745, he took the opportunity of exhibiting the effect of the liquid poison on one of the regiments of foot-guards, on their "MARCH to FINCHLEY." The troops are represented in great disorder, all more or less under the influence of spirits, and the scene is between two public-houses. the *King's Head* and the *Adam and Eve*, at the two corners of the Hampstead-road and the New-road.

* Price.

Hogarth about the same time painted the two celebrated pictures of "GIN LANE" and "BEER STREET;" in the former of which the victims to the seducing poison are put into coffins in the street, and in the latter the gouty gentleman in his sedan chair is obliged to wait at the public-house door, while the two chairmen get some drink. The actual destruction of life at that period from the abuse of spirits was very great. The number of births in a town generally much exceeds the deaths; it is so in London at present, and it had been so previous to the period spoken of, but the numbers during the rage for drunkenness had become nearly equal, and afterwards the deaths exceeded the births; to such an extent, indeed, had the mortality increased, that, in the year 1741, the burials were 32,169, while the christenings were only 14,937.

Again, the mortality, in 1700, was one in twenty-five annually; but, in 1741, it had increased to one in twenty—a twentieth part of the people being taken off every

year—at which rate the whole population would disappear in twenty years.

It was this frightful state of things that led the government to adopt the salutary measures already alluded to, and the improvement was such that the mortality began soon to diminish, and continued sinking, up to the year 1800, when it was one in forty annually ; so that, at the latter period, a person had twice as many chances of living through the year as he had in 1740.

This great improvement in the health of the metropolis was ascribed, and no doubt justly, to the precautions taken by the Government to check the reckless consumption of ardent spirits, by judicious *excise* regulations and duties ; and it is highly creditable to the various governments of the latter half of the last century that they preferred improving the morals and habits of the people to augmenting the exchequer at their expence.

Unfortunately, this saving principle has been partially lost sight of ; the excise

duties, within the last fifteen years, have been considerably relaxed, and, at the present day, the *Spirit of Gin* is again raising its demon head to destroy the industry of the operative classes of the metropolis, if not of the country at large.

Within the last six or seven years, the public houses have altogether changed their character and appearance. Instead of the house of *entertainment*, where the mechanic could take his pipe and pint of ale after his work, or the stranger find a resting place after his journey, there is now only *standing-room* before a stately counter, behind which are arranged a number of sleek and smart *bar-maids* and waiters, and over which is supplied, in never-ceasing succession, glass after glass of gin to a ragged, cadaverous assemblage of both sexes, who, as soon as served with their ardent potion, stagger forth to make room for other groups of a similar description. Gin is almost the only fluid drank, and if a poor man, tired from his labour, ask leave to *sit down* to take his pot of porter, he will most probably

be told by one of the flippant attendants at the bar that they can give no such accommodation ; that, in fact, they do not provide room for people who come there *on business*.

Crowds of people are always to be observed in and about the doors of the public houses in the principal thoroughfares ; they are to be seen in the street in the morning, waiting for the doors of these houses to be opened, they are with difficulty dislodged from them at midnight, but the most *trying* period of all, is that during the hours of divine service on a Sunday, when the swinish multitude, half intoxicated and noisy, are expelled into the street to hover and quarrel about the doors, until the service is over, and the doors again open to admit them, to complete their fill of debauchery.

These scenes are not highly coloured, they are to be seen in London constantly at all times and seasons, and it is questionable if they are much worse than were witnessed a century ago, when a person was invited to get drunk for one penny, and dead drunk for two pence. The appearance of the

public houses in London, is as much changed as their general character. Instead of the compact and comfortable look of the old ale-house, the open windows exhibiting the labouring part of the community carousing within at noon, or emitting the joyous chorus of an evening song, there is now a tasteless display of extravagant architecture over the whole exterior; the doors are studded with brass, and the windows composed of splendid plates in *or molu* frames, while the interior resembles a Grecian temple of former days; you see an arched lighted roof, supported on fluted Corinthian columus, classic designs thickly sculptured on the walls, chandeliers of crystal, and lamps of bronze suspended by richly gilt chains, and stately mirrors on all sides reflecting the mock grandeur of the scene; and all this costly show is wrung from the hard earned wages of the poor! It dazzles the imagination from without, while the poisonous draught operates on the brain within, so in time, like the fanatics before the car of Guggernaut, they become the

victims of the idol they have contributed to set up. In London these houses have obtained the name of *Gin Palaces*.

It must be obvious, from what is seen by every one in the metropolis, that the consumption of gin has much increased since the duties were lowered.

It is not possible to ascertain, from parliamentary returns, what the consumption of the metropolis has been of late years. The parliament has had an account published of the quantities of spirits consumed in the country generally, but not in London in particular; the following is an abstract of a late return, shewing the difference between the consumption in 1821 and 1831.

Account of the quantities of British, Colonial and Foreign Spirits which paid the home consumption duty for England, Scotland and Ireland, in 1821 and 1831.

1821.					
	Foreign.	Colonial.	British.	Total.	United Kingdom. Gallons.
England	969,474	2,166,441	3,820,015	6,955,930	12,036,335
Scotland	34,601	138,189	2,229,435	2,402,225	
Ireland	9,325	19,685	2,619,170	2,678,180	
1831.					
England	1,217,961	3,479,911	7,434,047	12,131,919	26,737,593
Scotland	39,744	125,702	5,700,689	5,866,135	
Ireland	10,483	18,384	8,710,672	8,739,539	

If any doubt existed as to the fact of there being a greater quantity of spirit consumed since the duties were lowered in 1823, this return sets the matter at rest; more than double the quantity of spirits paid duty in 1831 than in 1821, and admitting that, in the former year, much was consumed that had been smuggled, yet the difference is so great as to put beyond doubt that the consumption has latterly greatly increased. The augmentation is chiefly in British Spirits, but the Foreign is also increased, and in *England* the same is the case with the Colonial.

Although there is no official return of the quantity of spirits consumed in London, by the kindness of a gentleman connected with government, the following account has been obtained from the Excise Office, in the authenticity of which full reliance may be placed.

There were no dates by which an account could be given, corresponding with the exact time included in the foregoing table, but wanting that, an account for ten years are given, the nearest to the foregoing that could be obtained ;

An account of the quantity of Foreign, Colonial and British Spirits consumed in *London and its environs*, during each of the years from 1825 to 1834, inclusive.

Year.	Foreign.	Colonial.	British.	Total Gallons.
1825	778,134	1,056,173	3,304,271	5,138,578
— 6	687,754	1,121,163	4,571,775	6,380,692
— 7	543,711	958,548	4,602,376	6,104,635
— 8	546,819	891,742	5,291,970	6,729,931
— 9	517,251	931,453	5,028,187	6,476,891
1830	487,533	998,420	5,228,145	6,714,098
— 1	455,981	928,292	5,046,931	6,431,204
— 2	567,489	978,591	4,960,538	6,506,618
— 3	502,154	969,113	5,218,818	6,690,065
— 4	490,440	882,049	5,326,090	6,698,579

It will be observed that the quantity of British spirits consumed in the metropolis in 1825 was very much less than it was in 1834 ; 3,304,271 gallons having been drank in the former year, and 5,326,090 in the latter, being an increase of about two-fifths in ten years.

On the other hand, the consumption of foreign and colonial spirits in London greatly diminished during the same period ; from which it is not unreasonable to infer that, while the abuse of ardent spirits has increased among the lower classes, it has diminished among those above them.

If a return could have been obtained for 1821, it would have shewn most probably that the consumption of spirits in 1831, in London, was double what it was in the former year, as was the case in the kingdom generally : the duties having been lowered in 1823.

Apoplexy, Delirium tremens, Insanity, Palsy, Dropsy, Liver complaints, and general break up of the constitution, are among the most common ills incident to this vicious

habit; the ultimate effect, as we have already seen, is—death.

A very strong fact, corroboratory of the opinions here advanced, is contained in the Middlesex Asylum Report for 1834, it is thus expressed:—"The 76 deaths which have occurred in the year have been, with the exception of those who have died from advanced age, principally caused by the disease of the brain, of the lungs, and the complaints brought on by those deadly potions of ardent spirits in which the lower classes seem more than ever to indulge. In a very great number of the recent cases, both amongst the men and women, the insanity is caused entirely by spirit drinking. This may, in some measure, be attributed to the young not being taught to consider the practice disgraceful, and to their being tempted by the gorgeous splendour of the present *gin* mansions, to begin a habit which they never would have commenced had they been obliged to steal, fearful of being observed, into the obscurity of the former dram shop."

The difference in the *recoveries* among the

patients in the Metropolitan County Lunatic Asylum, and among those in Provincial Institutions of a similar description, is very remarkable. In the Middlesex (Hanwell) Asylum, rather less than 19 per cent. only of the patients recover; whereas, the recoveries in the different County Asylums of England amount, on average, to 46 per cent.*

Similar effects have been partially observed, and similar reports made in most County Lunatic Asylums in this country, and when we consider how much the pressure on the public mind has been increased of late years, by difficulties of all kinds on every side, by the struggles for existence of a surplus and daily increasing population, the crowded condition of all professions and trades, the lack of employment for the people, the scramble for situations among the youth, and the ruinous rivalry in commercial transactions; when we consider that these are evils over which we have little or no control, against which we look in vain for an

* British Annals of Medicine—Paper by Mr. Farr.

effectual or speedy remedy, is it not melancholy to think that the legislature of the country should assist in the destruction of the reasoning powers of the people? The anxiety occasioned by the circumstances here alluded to is not a sufficient burden for the harassed mind to bear, but the noblest attributes of man are sacrificed, as they were a century ago, and he is himself consigned to Bedlam, or to his grave, by the questionable policy of the legislature.

It is freely admitted that, however questionable the policy of lowering the duties on spirits may be, the present Government have been actuated by a desire to guard the morals of the people, as well as increase the Exchequer; a motion was brought forward in the House of Commons, in March, 1836. to reduce the duty on public-house licenses, when Mr. Rice, the Chancellor of the Exchequer said, " he had always thought, and had always said, that spirits were a fair article for taxation; indeed, it had always been his conviction that a more fair article for taxation could not be found, and the

limit was the fullest extent to which you could impose a duty without creating smuggling."

In 1834, the House of Commons, half awakened to this unfortunate state of things, appointed a Committee, on the suggestion of Mr. Buckingham, the member for Sheffield, to inquire into the extent and causes of drunkenness in this country; the evidence taken before the committee was as interesting as it was conclusive, and occupied the space of 440 folio pages. The substance of it is given in the report.

It states from the evidence of a great number of witnesses (among whom were medical men, clergymen, officers in the army and navy, sea-faring men and others) "that the vice of intoxication has been for some time past on the decline among the higher and middle ranks of society, but has increased within the same period among the labouring classes, and exists at present to a very great extent in the population of England, Scotland, and Ireland, and in the seaport and manufacturing towns, as well as in the agricultural

districts, including in its victims, men, women, and even children."

The report assigns, as causes of this increased intemperance, the reduction of the duty on spirits; the increase of dram-shops (the number over the whole kingdom averaging one to every twenty families); the cheapness of intoxicating liquors, a penny being more than sufficient for the purchase of a dram, and the custom of employing spirituous liquors in this country in all our ceremonies and courtesies of life, at christenings, marriages, deaths, and convivial meetings, and contracts of purchase and sale.

One of the witnesses examined before the committee stated, "that in the city of Glasgow alone, the sum expended in intoxicating drinks was nearly equal to the whole amount expended in public institutions of charity and benevolence in the entire united kingdom."

The military officers, in their evidence, stated, "that the drinking in the barrack canteens was the most fertile cause of all

insubordination, crime, and consequent punishment inflicted on the men."

It was proved to the committee that "the greater number of accidents occurring in both branches of the service, seven-eighths of the sickness, invalidings, discharges for incapacity, and nine-tenths of all the acts of insubordination, and the fearful punishments and executions to which these give rise are to be ascribed to drunkenness alone;" and that "beyond all question, one-sixth of the effective strength of the navy, and a much greater proportion of the army, is as much destroyed as if they were slain in battle.*

The committee calculated that the loss sustained "by the country by the excessive use of intoxicating liquors may be fairly esti-

* In reference to drunkenness in the army, it may be further stated, that in a parliamentary committee on military punishments, Lord Wharncliffe in the chair, Feb. 1836, the following was one of the questions put to the Duke of Wellington, and his answer:

Q. Is drunkenness the great parent of all crime in the British army, in your opinion?

A. Invariably.

mated at little short of fifty millions sterling per annum. The attention of this committee was directed to the kingdom generally, and startling as are the facts stated in the report, it must be obvious to every observer that, if their inquiries had been confined to the metropolis, they would have been much more so, for the vice of drunkenness among the lower classes, if we may judge from the expanding splendour of the gin palaces, is increasing daily in London.

This train of ills is attributable to the abuse of intoxicating drinks, more especially spirits, without reference to these being *adulterated* to a most dangerous extent; it is well known that the gin that is consumed in London is composed of the most destructive poisons; gin, in its pure state, is a most wholesome spirit; but the London dram-shop keeper, to make the liquor intoxicating, and, at the same time to increase his profit on its sale, adds oil of vitriol, sugar of lead, alum, turpentine, and other drugs* in large proportions, reckless alike of his own cha-

* Accum.

racter, and of the injury he inflicts on the community. The spirit is sent out by the distiller in a pure form, and of uniform strength; but the publican dilutes and adulterates it in various ways, and with impunity, for there is no law sufficient to prevent or punish this nefarious act; the dilution may be effected before the eyes of the exciseman, and he dare not interfere (as stated by one of the witnesses* before the House of Commons committee on drunkenness), the only duty of the officer being to see that there is no *increase of the stock at the distiller's strength* without a proper permit; the publican consequently commences operations on the gin as soon as it arrives on his premises, and large quantities of oil of vitriol, alum, nitre, ether, turpentine, white copperas and salt of tartar,† with copious draughts of water, are added to the original stock, which now undergoes a change in its quality (speaking *chemically*), the result of which is, that the compound, in-

* Mr. H. B. Fearon, Holborn Hill.

† Mr. Hartley's evidence before the committee.

stead of being a wholesome *spirituous* liquor, becomes an acrid *ether* ; its taste is changed from a pure alcoholic flavour to that of a fiery poison, which almost excoriates the palate and throat as it is swallowed, and a fluid more highly injurious to the animal economy could scarcely be invented. Thus, instead of the people taking a wholesome spirit in moderation, they take an immoderate quantity of a raw poisonous compound, more nearly allied to *vitriolic ether* than to any other fluid. It may not be amiss to mention, also, that the distiller's price is fourteen shillings the gallon, eight and sixpence of which is *duty*, whereas the publican retails his compound at eight shillings the gallon. The inference from this must be sufficiently obvious.

Mr. Moore, who has been for several years connected with Temperance societies, furnished the Parliamentary Committee on Drunkenness with the following information, collected from official documents, shewing that as drunkenness increased, so pauperism and crime increased.

The poor rates in England and Wales amounted

			Population.
In 1785 to £2,004,239	.	.	8,000,000
In 1831 to £6,798,888	.	.	13,897,000

The committals and convictions in London averaged annually

	Committals.	Convictions.	Population.
From 1812 to 1818	. 14,598	. 4199	. 1,100,000
From 1826 to 1832	. 24,564	. 7820	. 1,400,000

Further, the number of retail spirit licences in England and Wales have increased thus,

1821	.	36,351	|	1831	.	46,731
1825	.	37,281	|	1833	.	48,347

Mr. Moore employed persons to ascertain the numbers which frequented the London gin shops ; he took cognisance of fourteen of the leading houses, and the following is an account of the greatest and of the smallest numbers frequenting these houses :

		Largest Number.	Lowest Number.
Mondays	Men	3146	731
	Women	2189	305
	Children.....	686	100
	Total	6021	1146
Middle of the week	Men	1858	815
	Women	1305	443
	Children.....	285	113
	Total	3448	1375
Saturdays	Men	2764	1268
	Women	2336	656
	Children.....	369	141
	Total	5469	2060
Sundays	Men	1440	820
	Women	836	348
	Children.....	189	80
	Total	2465	1248
General Total per week		17403	5829

The writer has been credibly informed by a person who has himself realized a fortune in the trade, that in many of these houses the actual profits amount to £2000 per annum.

The foregoing tables afford additional proof of the vice of drunkenness having increased in this country, and of its existence at the present time to a very great extent ; the increase of pauperism and crime, as might have been expected, has kept pace with this unfortunate vice, so that the abuse of ardent spirits may be truly said to be one of the greatest curses of the country, both as regards its moral and physical character ; Mr. Gell, coroner for Westminster, deposed before the Parliamentary Committee, that he had held inquests on twenty persons, whose death had been caused by intoxication, between July 1833 and July 1834.

An account has been kept of the number of charges of drunkenness brought before the inspectors of police in London ; the following is an abstract of this account for one year :

Number of Charges of Drunkenness at the several Police Stations, London, 1833.

Division.	No. of Officers.	Population.	Charges of Drunkenness.		Public Houses.	Beer Shops.
			Male.	Female.	Total.	
A Whitehall	120	6,238	371	228	599	32
B Westminster	168	53,147	1864	1193	3037	186
C St. James'	188	105,862	2208	1256	3464	302
D Marylabonne	166	122,206	1019	605	1624	148
E Holborn	168	75,241	879	618	1497	249
F Covent Garden	168	41,010	1665	1388	3053	309
G Finsbury	236	115,266	1916	1270	3186	368
H Whitechapel	191	119,042	1803	1295	3098	359
K Stepney	296	143,137	1125	762	1887	437
L Lambeth	191	101,561	1291	944	2235	183
M Southwark	189	107,537	1284	843	2127	321
N Islington	269	140,407	826	409	1235	265
P Camberwell	243	77,825	203	80	283	138
R Greenwich	212	58,778	418	210	628	283
S Hampstead	223	112,136	697	319	1016	138
T Kensington	184	70,206	461	137	601	220
V Wandsworth	186	62,039	235	55	290	133
Total	3398	1,511,728	18,268	11,612	29,880	4071
						1182

For eighty years, viz. from 1741 to 1821, the mortality in London progressively diminished; this was attributed to various causes, most of which are still in operation, and it was predicted that improvement would continue to display itself; but what has been the fact? Not only has the mortality since 1821 *not* diminished, but it has considerably increased.

This, perhaps, is the strongest proof of all of the mischievous effects of the abuse of intoxicating drinks; that this depreciation in the public health is attributable to the excessive use of ardent spirits may be shewn by the correspondence between the mortality and the consumption of *British spirits*, and this comparison is fair, as five-sixths of the spirits drank in London is British, viz.: 5,046,931 gallons out of 6,431,204 gallons, and moreover London consumes nearly five-sevenths of all the British spirits drank in England, viz.* 5,046,931, out of 7,434,047 gallons.

* See tables, year 1831.

Mortality in London.					Consumption of British Spirits.
1820	1	in	42	.	No account.
— 1	.		42	.	—
— 2	.		39	.	—
— 3	.		39	.	—
— 4	.		40	.	—
— 5	.		39	.	3,304,271 gallons.
— 6	.		37	.	4,571,775
— 7	.		41	.	4,602,576
— 8	.		41	.	5,291,970
— 9	.		39	.	5,028,187
1830	.		41	.	5,228,145

Average 39.8

The difference in the mortality of the county of Middlesex in 1821 and 1831 is very remarkable; by the official returns, in 1821 it was 1 in 51 annually,

1831 . . . 45

The great increase of mortality in Middlesex leads one to imagine that the mortality in London is much greater than is represented by the foregoing tables, the difficulty of obtaining any thing like correct statistic information in the metropolis being very great; this defect however will, it is hoped, be rectified by the measure lately sanctioned by parliament, to establish a general registry of the births, marriages, and deaths.

After considering the evidence afforded by

the Middlesex Lunatic Asylum, by the parliamentary report on drunkenness, and by the increased mortality, a person can scarcely doubt that the abuse of ardent spirits which has prevailed since 1823, has produced the worst effects on the health of the people, as well as on their morals and happiness.

It has been stated that the tide of dissipation has turned, and that the effects spoken of were produced by temporary ebullition of passion and vice on the first reduction of the price of ardent spirits, but there is no sufficient evidence at present to shew whether this be the case or not.

The abuse of malt liquor is not one of the vices of the metropolis ; it is consumed in large quantities by one class of persons, but in them it can scarcely be considered a vice, as they undergo almost preternatural bodily exertion and fatigue ; the men alluded to are the coal heavers on the Thames.* These

* Four men are stationed in the hold, four on deck, and one at the basket ; one gang of nine men has been known to unload a vessel of two hundred tons in a day ; they receive as wages five farthings per ton per man.

men not unfrequently drink each from two to three gallons of porter in one day. The great adulteration of London porter is the subject of remark wherever this once famous beverage is consumed. It was formerly the universal drink ; it was palatable, wholesome, and invigorating ; but it is now ‘ flat, stale, and,’ as the gin-shop keepers say, ‘ unprofitable ;’ in addition to these drawbacks in its character, it is compounded of everything or anything rather than malt and hops, that by its cheapness it may withstand its poisonous and powerful rival *Gin*. According to ACCUM, very many drugs are employed to adulterate porter—*Quassia*, *Copperas*, *Alum*, *Salt*, *Gentian*, *Molasses*, *Liquorice*, *Capsicum*, *Coculus Indicus* and *Grains of Paradise* are among the number, most of which, particularly if taken habitually, are highly deleterious to the system.* “ I have reason to believe *Coculus Indicus*, *Grains of Paradise*, *Yew Tops* and *Tobacco*, are used :

* It may be mentioned that the importation of *Coculus Indicus* has increased from 1100lb. in 1829. to 4500lb., 1833. (Official Returns.)

I have seen *Fox-glove* leaves among the ingredients, among the grains and hops thrown out, in one instance.”* Stupor, Apoplexy, and that unmanageable malady, Nervous head-ache, are among the most common consequences of the narcotic effects of these adulterations. Unwholesome malt liquor, if taken in great quantity, will induce *Plethora* or superabundance of blood in the system; this effect, however, is seldom seen in London, except in the draymen and other persons employed about the breweries.

That the system is more readily affected by intoxicating drinks in London than it is in the country, there can be little doubt; indeed, it is not uncommon to meet with several persons in a company who are either unable to take spirits at all, or who are obliged to take them very sparingly, the inability arising from the certain consequence of a sick head-ache or some other indisposition on the following day. This is, no doubt,

* Evidence of Mr. O. Roberts, Surgeon, of Carnarvon, before Parliamentary Committee.

the case every where ; but it is certainly more general in London than out of it.

The causes prejudicial to health which are here considered, bear chiefly on the lower classes ; and it would be well, not only for them, but for society at large, if means could be devised of correcting the evil. One of the most obvious is the prevention of the adulteration of spirits which, unfortunately, is carried to a most poisonous extent. Why, for instance, is not the adulteration of spirits and of malt liquors prevented ? It might be easily done, since chemical analysis has been for many years fully equal to the detection of contraband ingredients ; but no, the prohibition is chiefly in reference to malt liquor, and the surveillance is left to ignorant and bungling excise officers. The mixing and *sweetening* of the spirit, as it is called, is left to the discretion of the publican, and the consequence is the most subtle poison is served forth to the ignorant poor.

Why the adulteration of spirits and beer should be permitted is an enigma not easily solved ; the former may be tampered

with before the eyes of the exciseman, and he has no power to interfere. Nothing would be easier than to detect alum or vitriolic acid, and it would be well if the legislature would take some steps to prevent the sale of spurious and heterogeneous compounds instead of pure spirit.

There is one dire enemy to the morals, independence, and, consequently, health of the poor man, namely, the Pawn-broker;* the too easy means of raising money on articles of small value, frequently fleeces him of all his little property, and leads to his ruin; if he were obliged to *sell* his things to obtain money, he would hesitate before he took so decisive a step; but when he takes them to a pawn shop and obtains a tithe of their value, he is deceived into the idea that he will redeem them to-morrow, but to-morrow never comes, and eventually he is pillaged of his property.

In the few cases in which a poor person is able to redeem his goods, he does so at a

* See Evidence given before Parliamentary Committee, already referred to.

very dear rate ; for, although, by the law of this country, no one can receive more than five per cent. for money lent to a *rich* man, the pawnbroker is permitted to extort twenty per cent. from the *poor*, without running any risk of losing by the transaction, even if the property be never redeemed. This most pernicious system holds out everlasting temptation to the labouring man and mechanic, to leave the path of industry and sobriety, and to plunge into dissipation and vice : trifling indiscretions at first lead on to desperate recklessness, and his peace of mind, his character, his property, and his health, are all swallowed up in this dark and lethiferous gulph. The pawn and gin shops flourish best in the most wretched parts of the metropolis, and it has been observed that the clamour raised against the new poor law has emanated chiefly from the pawnbroker and publican.

This vice, for it cannot be considered any thing else, is much more prevalent in London than in the country, and is undoubtedly one of the remote causes of the value of life

being lower. By a Parliamentary return, lately published, it appears that the number of pawnbrokers in

England and Wales is 1476,

Scotland 61

Total 1537.

Of this number, no less than 380, or one-fourth of the whole in Great Britain, are in London. A fact so striking, as connected with the lower standard of health in the Metropolis, that it requires no further comment.*

In as much as dissipation and drunkenness are prejudicial to health, so are temperance and sobriety favourable to it; it is obvious therefore, with a view to improve the condition of the inhabitants of the metropolis, that every effort should be made to discourage the one, and to encourage the other; and bad as the vice of intoxication is, and baneful its effects, there is some ad-

* Apart from this subject, one of the chief evils of pawnbroking is the facility it affords thieves of disposing of their booty.

vantage in knowing the character of the mania, and its antidote, even although the remedy is difficult of application.

The object, then, is to promote habits of Temperance by all ordinary means, and to reward Honesty, Industry, and Cleanliness, among the lower classes.

Then the question arises, how are these ends to be obtained? not by *driving* the people with the strong arm of the law, by fresh enactments, and by physical punishments on offenders, as unfortunately is too often the case in barracks; but by treating the people as rational beings, by employing a moral influence to *lead* them into paths more creditable to themselves as individuals, and to the nation to which they belong. It has been too much the custom, in this country, to tell the people what they are *not* to do, without affording them any assistance or advice as to *how* they might best employ their leisure time.

They might be considered a flock without a shepherd, no instruction being given to direct them in the right path, and if they

went wrong they were punished with stripes. This defect seems to originate in the distance which is maintained by the upper classes between themselves and those beneath them.

The hauteur of the high cast native of this country has been proverbial for ages, and his motto has been—

“Odi profanum vulgus, et arceo.”

Nor has the evil been confined to *neglect* of the lower classes ; the principle of proscription has been exercised, and they have been excluded from exhibitions and scenes calculated to elevate and improve the mind.

For instance, the finest collection of sculptures in this country, namely that in Westminster Abbey, is open only at certain hours on week days, and then on payment of money : this may be no inconvenience to the rich, but it amounts to an actual prohibition to the mechanic. Here are the proudest monuments of the greatness of our country ; a history of England wrought in marble and bronze, shut against all but those who have time and money at their

command ! Is not this a melancholy truth ? Ought not this glorious temple to be open, without a shadow of restriction, at all reasonable hours, *every* day, particularly on the *Sunday* ? for, next to attendance on divine worship, nothing is so likely to fill the mind with reverential awe as a visit to this sacred Mausoleum, a scene calculated alike to improve the moral tone of the mind and to afford valuable instruction in history and art.

A small portion of the Abbey, called Poet's Corner, is open to the public whilst Service is being performed in the nave ; as soon however as it is finished the people are required to walk out, or to pay to be allowed to remain.

The effect of this greedy and disgraceful order, on a literary mind, is well described in some lines in Frazer's Magazine for September, 1831, entitled

THE ABBEY.

A feeling sad came o'er me as I trod the sacred ground
Where Tudors and Plantagenets were lying all around ;
I stopped with noiseless foot, as though the sound of mortal tread
Might burst the bands of the dreamless sleep that wraps the mighty dead.

The slanting ray of the evening sun shone thro' those cloisters pale,
 With fitful light on regal vest, and warriors sculptur'd mail;
 As from the stained and storied pane it danc'd with quiv'ring gleam,
 Each cold and prostrate form below seem'd quick'ning in the beam.

Now sinking low, no more was heard the organ's solemn swell,
 And faint upon the list'ning ear the last Hosanna fell!
 It died—and not a breath did stir above each knightly stall,
 Unmov'd the banner'd blazonry hung waveless as a pall.

I stood alone, a living thing 'midst those that were no more,
 I thought on ages that were past, the glorious deeds of yore,—
 On Edward's sable panoply—on Cressy's tented plain—
 The fatal roses twined at length in great Eliza's reign;

I thought of Blenheim—when at once upon my startl'd ear
 There came a sound—it chill'd my veins, it froze my heart with fear,
 As from a wild unearthly voice I heard those accents drop—
 "Service is done—'tis tuppence now for them as wants to stop."

St. Paul's Cathedral, for the same reason,
 should be open to the public at all times.*

* Since the above was written, a Committee of the House of Commons' Report has been published relative to our deficiency in the schools of design for manufactures and workmen, and expressive of our narrow policy in not opening our Churches, Exhibitions, and Museums, gratis. The following paragraph is extracted from the Report:—

"It appears that among our workmen a great desire exists for such public exhibitions. Wherever it be possible, they should be accessible after working hours, and admission should be gratuitous and general. A small obstruction is frequently a virtual prohibition. The vexatious fees exacted at Westminster Abbey, St. Paul's, and other public buildings, are discreditable to the nation. In Westminster Abbey, not only is a fee demanded at the door, but supplementary fees are extorted in different portions of the building."

Next to these comes the British Museum. This Institution, rich in antiquities and specimens of Natural History, is one of the finest, most extensive, and most valuable Museums in the world. It is an honour as well as a treasure to this country, and might be made of great practical use in improving the morals and habits of the lower classes in the metropolis; but in this respect it falls short. It is true no money is demanded for inspecting it, but it is not open at the times when the mechanic could avail himself of the amusement and instruction it affords. With the exception of the library, the Museum is open only on Mondays, Wednesdays, and Fridays, from ten till four, so that it is next to impossible for a person engaged in business to examine it once, much less to visit it frequently, which a rational mind would be inclined to do. The exhibition moreover is entirely closed for one or two weeks at Easter and Christmas, and for six or eight weeks in the Autumn, from which it would appear that the doors were purposely closed against the

lower classes : would it not be good policy to throw open these interesting halls on the Sundays, and during Christmas, Easter, and Autumn, every day, and all day long, by which the orgies of the gin shop, and the saturnalia of Bartholomew's and Greenwich fairs might be superseded ?* You may turn the people out of the public-house "during the hours of divine service," but you cannot compel them to go to church ; on the other hand, if you invite them to inspect the curiosities and wonders of *nature*, there would be some hope of their minds being directed to nature's God.†

After allowing the people to reflect on the works of nature and of art, lead them to the Tower, to Deptford, to Woolwich, and let them see the engines of the desperate alternative *war*, introduce them to the veterans

* The Museum might be further improved by adding to it a collection of specimens of human and comparative Anatomy, and a gallery of models and machines, both which might be obtained in a short time, at no very great expense.

† Since the above was written, some of the suggestions here thrown out have been adopted ; the Museum is in future to be open during Christmas and Easter.

at Greenwich and Chelsea, and they will be able fairly to compare the triumph of industry and peace with the blood-stained honours of discord and strife; and all similar scenes might be thrown open to the people on the Sunday, with every prospect of their morals being improved thereby, and consequently their health.

Still further steps might be taken, and it is doubtful whether or not it would not be productive of public good, that as places of rational recreation were opened on the Sunday, the public-houses should not be entirely closed; at any rate, that no liquors should be drunk in them on that day. Another check to the abuse of intoxicating drinks, and to the habit of frequenting the dram-shop, would be the introduction of the system of selling all liquors in *bottle*, instead of in *draught*.

This would have the effect of encouraging the consumption of these drinks *at home*, rather than at the gin-shop or ale-house, and eventually correcting the vicious habit of dissipating health, time, and money in the

public-house. This custom prevails universally in Scotland, with respect to wine and malt liquor, and to a great extent in spirits. There is in consequence less temptation to drunkenness, and certainly more sobriety than in England. In that country the dram shop is not permitted to put on the brazen front which the London gin palace assumes, but is very properly kept under, and this is partly attributable to grocers and provision dealers being permitted to sell *bottled* wines, spirits, and ales.

After discouraging, as much as possible, the abuse of intoxicating liquors, it would be desirable to encourage habits of temperance and industry by the promotion of Benefit Societies and Savings' Banks, and by instilling principles of prudence in the insurance of life. The legislature has already done something towards this end, by passing an act of Parliament for the incorporation and protection of those Societies.

Village-greens in the neighbourhood of London contribute largely to the health of the inhabitants of the metropolis, and it is

to be regretted that there are not more of them ; then would the mechanic lead forth his wife and children of an evening, to witness the rural sports of cricket and foot-ball, and conduce to their health and happiness and his own, instead of spending his earnings in a pot-house. It has been said that the lower classes of English people are not sufficiently civilized for such recreations—that they are a barbarous and mischievous race, altogether unlike their compeers in other countries. It is unquestionably true, to a certain extent ; but it is not altogether to be wondered at, when we consider how *exclusively* they are dealt with by the castes above them.*

It may be said that these remarks and suggestions are irrelevant—that they refer to the moral, rather than the physical, health of the inhabitants of London ; but it comes

* It is much to be regretted that the Government, instead of throwing open every rood of the Regent's Park to the public, should allow nibbling societies to fence in, and privileged individuals to monopolize considerable portions of it : if the present system go on, the park will, ere long, rival that classic grove, St. John's Wood!

to the same thing ; for the two are inseparable, and what promotes the one invigorates the other.

As Sunday recreations are recommended, it may be observed that the suggestion is not new ; for wherever there is a military band, there is a concourse, in the afternoon of that day, to hear the most fashionable airs and newest waltzes played ; and attending a village fête must be as harmless as beating time to a gallopade on the Terrace of Windsor castle.

Again, the patrons and patronesses of Natural History in the metropolis are so convinced of the rectitude of their pursuit, that the Sunday is set aside, by consent, for visiting the animals in the Zoological Gardens, and no one challenges the propriety of *their* conduct.

Many persons object to the Sunday being made a day of recreation, and contend that it should be a day of humiliation rather than rejoicing ; but the Pandects of Christianity do not teach us that gloom is more consistent with praise and thanksgiving

than cheerfulness. The whole question, however, seems to be, what is meant by the term "*Holy-day?*"

Several attempts have been made, of late years, by some fanatics in the House of Commons, to make the Sunday a day of humiliation and fasting ; to stifle every thing in the shape of pleasure, however innocent it may be. This tight-laced policy, however, will never suit the English nation ; the people are naturally well-disposed, and, if left to themselves, will conduct themselves morally and religiously, without Sir Andrew Agnew's interference ; rigorous restrictions on them, in this respect, would be like that barbarous invention fixed on horses' heads, the bearing rein—it irritates, and even impedes, those disposed to go well, while it never prevents a stumbler from falling.

CHAPTER XIV.

Manners and Customs of the inhabitants of the Metropolis—Their effect on Health—Gluttons in the city—Pernicious effects of Suppers—Hours of meals—Late dinners, late rising—Late hours at night—Evening and Morning, Summer and Winter, reversed—Dinner hour of the Ancients—Of the fifteenth Century—The Earl of Northumberland's Household Book—Dining-hour of the sixteenth Century—Of the seventeenth Century, of the eighteenth, and of the nineteenth Centuries—Mismanagement the cause of late hours—People of pleasure follow People of business in their hours—Late hours injurious to Health—Effeminacy of the present age—Naval and Military Officers ride in close carriages—Seasons suspended—Summer in London—Winter in the Country—Fault of the Court and Parliament—Credulity of the Public—Their predilection for Quackery—Examples for improvement should emanate from high quarters—Nocturnal Fetes and Revels destructive of Manly Vigour and Female Beauty—Indulgences of the present day—Custom of cropping the Hair—May it not induce baldness?—Females seldom have their Hair cut, and are seldom bald—Marriages between Blood Relations reprehensible—The evil effects seen in the issue—

Scrophula engendered in its worst forms—Insanity and Consumption—Theory of the marriage laws—Physical influence not sufficiently considered—Marriage between relations of consanguinity permitted, and by affinity forbidden—Marriage law of 1835—Dr. Lushington's arguments for forbidding the marriages of the Widower to the deceased Wife's sister—The subject requires the attention of Government.

MANY of the customs, manners, and habits of the inhabitants of the metropolis are prejudicial to health. Some of these are physical, whilst others are moral, in their effects. Among the former may be considered the diet, hours of meals, of rising and sleep, of pleasure and business, of the people, which most probably take their origin in the moral influence of a greater spirit of enterprise and increased luxury and refinement, the good and bad effects of knowledge extensively diffused, and of general civilization.

The diet of the inhabitants of the metropolis, where they have the means of obtaining it, consists of the best of every thing supplied by the earth and sea, at home and abroad; every species of food is provided for the London table, and nowhere, perhaps,

is there seen so great a variety of articles of consumption.

“Veseendi causâ terrâ marique omnia exquirere.”

Sallust.

The city of London has long had the character of gluttony on all festive occasions; and indeed it contains so many corporations that this is not to be wondered at, for these bodies seem intended to encourage gormandizing, enabling as they do their members to feed at the public expense. Some of the aldermen of the city have been particularly distinguished in this respect, and the demand for the most extravagant luxuries for the table has been met by efforts of no ordinary nature on the part of the caterers for civic entertainments; nay, it has often occurred that three or four worthies have met to dine at a tavern in the city, and their bill has amounted to £5 a head.

With the exception of this chartered portion of the town, the metropolis cannot be accused of gluttony, though it is common for all classes to live well, if their means will permit them so to do. The quantity of animal food and fermented liquor taken by

the lower classes of tradesmen and operatives, appears to be greater than is consumed in the country, and the additional stimulus thus generated cannot but be prejudicial to health; the practice of eating supper also prevails among these classes of persons, not unfrequently accompanied by a certain quantity of ardent spirits, a practice so detrimental that none but those in good health are able to follow it.

Nothing more plainly betrays our ignorance of the principles of health, and at the same time our slavish submission to selfish indulgence, than the custom of eating suppers: instead of allowing the body, with its multifarious powers, to be refreshed by tranquil sleep, and the mind to be relieved from care and thought, irritation and excitement, the stomach is loaded with probably a heterogeneous mass of food, and the whole machinery of the inward man is forced into sluggish operation, when the vital powers are at the lowest ebb; the brain, feverish and disturbed, sends forth startling visions and horrifying dreams, until morn-

ing dawns, when the haunted imagination recovers itself, and is conscious of the mental and bodily vigour being rather exhausted than refreshed by the night's turmoil. This is not the exception with many persons, but the daily or rather nightly rule, and they persist in the pernicious course, notwithstanding that they are often sensible of the injury it inflicts on the constitution.

The hours at which meals are taken in London, more particularly by the middle and upper ranks of society, are at variance with nature's rules, and consequently tend to the lowering of the standard of health. It is no argument that persons go on from day to day, living irregular lives, and still enjoy good health; it is their good health which enables them to do so, and is the cause of their keeping up, rather than the effects of the course pursued; some persons lead most extraordinary lives, eating and drinking of every thing, eatable or drinkable, that comes in their way, often to great excess and without reference to time or season, disregarding alike of hours, either for meals, pleasure, or

repose ; but these have constitutions of iron, which last for a while, but the time comes when they cannot do as they used ; nature calls out at last, and they are compelled to confine themselves more to sobriety and rule.

Dinner is considered the chief meal amongst civilized people in modern times ; it was usually taken about the middle of the day, and continues to be so in agricultural districts and among the lower classes : among the higher, however, it is now usual to take this meal in the evening, and it has become one of the characteristics of a genteel family that they dine at six or seven o'clock. In London, where appearances go so far, where etiquette is the gauge of good breeding, and where fashion rules triumphant, the upper ranks seem anxious to outstrip each other in the lateness of their dining hour. Hence it is very common, in the mansions of the great, for the dinner not to be served until after nine o'clock. This custom is the effect of necessity with a portion of the higher orders resident in the metropolis, and of imitation with the remainder ; business occupies

the members of the government, for instance, until late in the evening, and pleasures are devised for the fashionables to enable them to get over the tedium of the day.

This lateness, this turning night into day, is decidedly prejudicial to health. It is the cause of indisposition to thousands in London, it robs youth of its bloom, manhood of its vigour, and old age of most of the few remaining enjoyments of life. It is the result solely of mismanagement on the part of one party, and of folly on the other. Late rising in the morning, and procrastination of the business of the day, are the mismanagement which leads to this state of things.

Late rising has become a confirmed habit of the upper classes in London; it is not, like late dining, an essential mark of respectability to lie in bed till the middle of the day; but it is, nevertheless, the custom at present for members of parliament and people of fashion to breakfast at noon, and commence the business of the day after the sun has completed half his diurnal course. This is a most pernicious habit, both as

regards health and the dispatch of business. Its effects on the young are most strongly marked, it is the cause of the emaciated form and haggard look, of the sallow cheek and glassy eye, of the inward weakness and incapacity for business, and often even for pleasure, and yet fashion keeps its slaves by silken reins within this harassing track. It is this which renders many persons incapable of residing in London, and compels them to fly to peaceful retirement, with its simple habits and unsophisticated rules.

The late rising is the effect of the late hours at night, and this is the last segment of the round of artificial habits and dissipation which now prevail partially in the middle and universally in the upper ranks of society; delay in one stage causes irregularity throughout the journey, so the procrastination in one duty or pleasure soon extends its effects to the whole routine of the day, and often the sun sinks below the horizon before the *duties* of the day have been well begun.

Many persons, for months and years toge-

ther, are accustomed to count the second or third clock after midnight before their eye-lids remind them of their usual hour of repose having arrived, and this from habit without necessity.

These habits are a source of weakness in the constitution of the individual, which being entailed on succeeding generations, develops itself in disease of endless variety. Not only is the night turned into day, but the very seasons are reversed, as far as regards the habits of the upper classes; instead of spending the dull and cheerless months of winter in the society of friends, or in the domestic comfort of a glowing fire side in town, and going forth to the country when nature smiles, invited by the melody of birds, the enlivening call of the flocks and herds, the universal bursting forth of leaf and flower, in summer,—they loiter in London till after the dog-days, then repair to the country as winter approaches, and leave their gardens and lands on the appearance of the snow-drop and daffodill in early spring. This depraved taste does not arise from choice,

but from the force of fashion ; and it is worth while to consider whence the example comes. It is only of late years that this custom has prevailed to great extent.

In ancient Rome, the citizens took a light meal, which they called dinner (*prandium*), at noon ; their chief meal was supper (*cæna*), and this they took at three o'clock in summer and four in winter ; if a person wished to entertain his friends in greater style than usual, they were invited to meet at an *earlier* hour.*

As luxury, dissipation, and vice increased, the supper was taken in the evening, and the night was spent in revelry and debauch.

By the household book kept in the Percy family, it appears that, in the fifteenth century, the Earl of Northumberland and his household rose at *six*, dined at *ten*, and supped at *four* in the afternoon ; the gates were all shut at *nine*, and no further ingress or egress permitted. “ My Lord and Lady have set on their table for breakfast, at seven o'clock in the morning, a quart of beer, as

* Adams' Roman Antiquities.

much wine, two pieces of salt fish, six red herrings, five white ones, or a dish of sprats. In flesh days, half a chyne of mutton, or a chyne of beef boiled." No mention is any where made of *plate*; pewter vessels were those in common use. The Earl's household consisted of 166 persons. The beef and mutton was all salted, except between Midsummer and Michaelmas, when it was eaten fresh.

In the sixteenth century, in the reign of Elizabeth, the hours of meals seem to have been much the same as in the preceding age. "With us," says Holinshed, "the nobilitie, gentrie, and students do ordinarily go to dinner at eleven before noon, and to supper at five and six at afternoon. The merchants dine and sup seldom before twelve at noon and six at night, especially in London. The husbandmen dine also at high noon, as they call it, and sup at seven or eight, but out of term in our universities the scholars dine at ten." Holinshed insinuates that even in his time the fashionables were

becoming a little extravagant in their habits.

“For the nobilitie, gentlemen, and merchantmen, especiallie at great meectings, do sit commonlie till two or three of the clocke at afternoon !” He further inclines to the opinion that one meal a day, taken towards the evening, was most fit for man. “For, indeed, the Romans had such a custom, and likewise the Grecians, as may appear by the words of Socrates, who said unto the Athenians, ‘ *Oriente sole consilium, occidente convivium est cogitandum.*’ ”

“Plato called the Sicilians *monsters*, for they used to eat *twise in the daie* !”

In the seventeenth century, people dined at noon, as in the preceding age. Never, perhaps, was there more dissipation among people of fashion, and more particularly at Court, than there was in Charles II.’s reign, but the hours were not affected thereby. Pepys, in his memoirs, mentions the hour of noon as the dining hour at that period, and speaks very feelingly of his

appetite being greatly impaired on the 2nd of September, 1666, by being informed that the fire,* which had broken out during the previous night, was not only n^ot extinguished, but was spreading rapidly in all directions.

In the eighteenth century the hours had become somewhat later ; but were still, comparatively speaking, very early. The nobility and gentry dined at two or three o'clock ; but towards the close of the century, the fashionables had, by degrees, got into the hitherto unheard of habit of dining at five. The king, George III., however, withstood the changes of custom in this respect, and continued to dine at three o'clock.

The hour at which this meal is taken by the upper classes in the metropolis is eight or nine o'clock at the present day ; it is the chief meal still, and, with the exception of its being taken at rather a later hour, is equivalent to the supper, the chief meal of the ancient Roman fashionables ; the only real difference seems to be in the name. In

* The great fire of London.

Rome, dinner was taken at noon, and supper in the evening, in its luxurious age ; in London, lunch is taken at noon, and dinner in the evening. It has been observed above that mismanagement is the cause of this lateness ; at the same time, however, it is freely admitted that pressure of business, and increased duties, are the predisposing causes (to use a technical expression in medicine) of the evil, for unquestionably an evil it is of no small magnitude, either as regarding health or happiness.

The business of the inhabitants of this country has greatly increased of late years, as is easily proved by referring to the records of the Parliament, the Government offices, the courts of law, and the gigantic spirit of invention and enterprise which characterize the scientific and commercial operations of the present day ; and this seems to be engendered by the extension of knowledge, and the advancement of civilization, with their too frequent accompaniments—luxury and vice.

If the day be over-burdened with occu-

pation, refreshment of food and sleep are postponed, and hence the origin of late hours.

If a man have a long journey to travel, he sets out betimes in the morning, and this enables him to accomplish it with comparative ease ; but if he delay starting till noon, he must perform part of his task in the night, or postpone the half of his undertaking till the following day : so it is with a vast number of persons in the metropolis at the present time ; they have much business to perform in the day, but instead of commencing in the morning, and finishing at dusk, they begin at noon, and with difficulty close their labours at midnight. This is the *mismanagement* spoken of ; other persons, destitute of occupation, and unable from their own resources to get through the day, imitate the hours of the people of business, and so not only assist to keep up the habit, but to make it still later ; the theatres in consequence are not opened so early by an hour as they formerly were, and of course close later.

That these habits are greatly injurious to health is unquestionable; their influence is felt perceptibly by the living, and their effects are seen in the vastly greater mortality in London than in the country; but artificial habits, a heterogeneous diet, and indulgent clothing, all followed, as much as possible, in opposition to nature's rules, form the chief luxuries of the present age; and in as much as persons set at nought the dictates of reason, they induce derangement of the animal economy.

Many other habits of the nineteenth century are prejudicial to health. The effeminate custom of men riding about the town in carriages, instead of practising the more manly exercise of riding on horseback, or following the more independent method of using the limbs for locomotion which nature has given them, undermines the natural vigour of the system, and enfeebles the constitution. Queen Elizabeth went to open parliament on horseback, but now, not only do ladies recline in silk cushioned chariots, but gentlemen, officers

in the navy and army, and others, must be carried in a close carriage, if they wish to keep up appearances, and to maintain the respectability of their rank in society.

In London, wholesome and athletic exercises are scarcely known; the time of persons of fashion being principally spent in clubs and heated drawing rooms, pursuing in-door luxury, and often dissipation, as the chief end of their lives.

As has already been mentioned, the seasons are reversed as well as the days and nights. People spend the summer in London and the winter in the country. The effects of this depraved habit are very perceptible in the sallow, emaciated, broken down appearance of all classes of persons at the end of the season; the members of the government, the members of parliament, the judges, the gentlemen of the bar, and most professional men, display the effects of this dog-day system in a remarkable manner, particularly when contrasted with the appearance the same persons make at the beginning of the campaign; indeed, the dif-

ference is so great in many instances, that a man may not be recognized by his friends.

The inroads made in the health by this strange perversity of habit, are too well known to require further comment. Thirty years ago, parliament (meeting in the month of February as it does now) dispatched its business by the end of May, the members remaining in town, after that time, only for the sake of doing honour to George III. on his birth day, on the fourth of June; at the present day, the parliamentary session occupies the whole summer; that of the year 1835 having been prorogued by the king on the 10th of September! and this is a very strong fact corroboratory of the business of the public,* having greatly increased of late years.

One cause prejudicial to health, partly of a moral and partly of a physical nature, is the credulity which prevails to a great extent among the English people, causing them to be led, by quacks of various kinds, to the injury of both mind and body; on

* As well as the *cacöethes loquitandi* in the Senate.

the moral side may be ranked the scribes of a portion of the public press, and religious fanatics, who find no difficulty in gulling large numbers of persons, and on the physical side are the empirics who, by mountebank representations, prevail on the credulous to swallow large quantities of drugs.

The English have ever been prone to this failing, but the diffusion of knowledge which has taken place in the last quarter of a century, has tended much to dissipate the clouds of error which enveloped the ignorant. Still there are many persons, even in the highest ranks of society, who will digest either metaphysical or physical trash, however monstrous it may be, and however impure the source whence it springs.

It is hoped, as the reasoning powers of the people are more fully developed, this weakness will be rectified; but some time must elapse ere this takes place, as the disease has not only taken root deeply, but is extremely contagious, and this the quacks themselves are well aware of.

To such an extent is English credulity, in respect to taking quack medicines, carried, that not a year passes without *lives* being sacrificed, to say nothing of the thousands whose health has been destroyed by this dangerous vice. Within the last few years, a drastic compound, consisting of gamboge, aloes, cream of tartar, and some other powerful purgatives, and sold under the name of “Morison’s Pills”—to cure all diseases, and to make better those who are well—has caused the death of several persons, and notwithstanding the persons who sold or administered this poison were tried and convicted of manslaughter, and were severely punished;* yet persons are still found, not in the lower or middling classes only, ignorant enough to be gulled into swallowing large quantities of this magic compound.

It is only five or six years ago since a person by the name of O’Driscoll, but who assumed the more euphonical cognomen of *St. John Long*, practised on the credulity of

* See the trials of Webb, at the York Autumn assizes, 1835, and of Salmon, before the Central Criminal Court, London, April, 1836.

the public, by pretending he could *extract* all diseases by rubbing an attractive stimulant on the exterior. *He* also caused the death of many individuals by making wounds he was unable to heal, for which he was tried, convicted and punished; the malady he undertook chiefly to combat was consumption, and he made many persons believe that he could cure this dreadful scourge, but he gave the lie to his own canting professions by falling a victim to the disease himself. So persuaded, however, were some credulous, nervous persons, that he had cured them of maladies they never had, that they erected a grand monument to his memory, in Kensall Green cemetery.

One of the most extravagant conceits ever promulgated in connexion with the healing art, was started by Dr. Samuel Hahnemann, at Leipsick, about fifteen years ago, under the name of HOMŒOPATHY.

The acknowledged principle in medicine is—"Contraria contrariis curantur"—that fevers, for instance, require cooling remedies, and that cold and numbness should

be met by warm stimulants. This idea is declared by Hahnemann to be utterly erroneous ; his doctrine is, that every irregularity in the system is a natural effort, and ought to be encouraged ; to give effect to his notion, he administers to the invalid such medicines as would induce corresponding symptoms in a healthy individual, in fact, alcohol is the remedy for fever, and ice for ague ; he admits that the remedies must be employed very sparingly, that the millionth part of a grain or a drop, is a full dose ; that a brain fever at Greenwich (after the fair) might be cured by making the patient drink out of the Thames, into which a glass of gin had been thrown an hour previous at London-bridge ! Glaring as this absurdity is, it has found some proselytes in London, but they have been principally among the aged of the softer sex. The academy of sciences, in Paris, took up the question some years ago, and after giving the plan the most favourable trial and examining it dispassionately, both in a theoretical and practical point of

view, pronounced it a gross deception. So much for this monster of the Faust and Der Freyschutz school.

The way to correct depraved habits is by example, rather than precept, and if any improvement is to be effected in the metropolis in this respect, it must be commenced by the Court, the Parliament, the Judges, and influential persons in the public offices.

If, for instance, the Sovereign gave audience, and the ceremonies of the palace were conducted early in the day, a very short time would elapse before the hours of business and pleasure would be changed, by persons in every rank in society, and the benefit to the health would soon be perceptible. If the hours of business were reformed, those of pleasure would no doubt be rectified; how much more rational would it be, for example, for evening amusements to commence in the evening, and terminate at midnight, instead of large assemblages of people meeting in the dead of night, and revelling to the sound of the pipe and tabour till morning; but fashion is all powerful, and its votaries must

submit to take a part in these nocturnal rites, if they wish to maintain their rank in society, or to keep within the pale of respectability. Not only are the baneful effects of these midnight festivals experienced by the youth of both sexes on the following day, but their health is materially injured thereby, and it is painful to think that girls, whose 'faces are their fortunes,' should, at their very outset in life, be subjected to such severe ordeals, by which, in fact, their health and bloom are frequently destroyed.

If the court once set the example, the whole town would soon follow, and the mischievous tendency of late hours would be effectually corrected. It is not very long since the sovereigns of this realm received their ministers, despatched messengers, and went forth to business or recreation early in the day, and if it was considered wise to do so in Elizabeth's time, how much more essential is it at present, since business has so much increased !

The luxury of the present age, the mode of dress, the system of locomotion, and

many other new-born indulgencies, operate against the health of the people, though it is admitted that some of them conduce to their strength and vigour. The fittings and furniture of our houses, the curtains, carpets, and air cushions, the hermetically framed doors and windows, the hot-air stoves, act pro and con, being valuable acquisitions to the sickly and infirm, but prejudicial to the healthy ; then the highly elastic spring vehicles, in which people are carried about, are indulgencies not known to our ancestors. The fashion of our dress has also become more luxurious than it formerly was. India rubber waterproof cloaks are invented lest the body should be sprinkled by rain, and clogs of the same material are fitted over our boots. In this manner a person fails to become seasoned and hardened against the vicissitudes of weather and climate ; but, on the other hand, the valetudinarian is enabled, by their means, to eke out a tolerable existence.

The mode of keeping the hair closely cropped seems, like many other customs,

very unnatural, and it is not impossible but that the constant clipping promotes its rapid growth, and thereby exhausts the soil, which may account, in some measure, for baldness being so general amongst us. Females allow their hair to grow long : it is moreover seldom cut, and it is very unusual for a woman to be bald.

There is one custom in this country, which, whether it be reprehensible or not in a moral, is certainly most objectionable in a physical sense ; it is the practice of relations intermarrying. As the law at present stands, two grand-children of one man may become man and wife, being what are usually called first cousins ; this is as foul a stain on the canon law as the effects are calamitous to posterity, for the children of such marriages seldom thrive, they are dwarfish, or are ill-formed, they have short sight, or even have their vision destroyed by cataract, their skin is disfigured by blotches, and glandular swellings lead to unseemly wounds, they are cut off by consumption, or, what is still worse, the mental faculties break

down, and they become inmates of a lunatic asylum. In short, scrophula, in its most hideous forms, revels in the system of the unhappy child of two persons of one blood. Nature seems to abhor this incestuous compact, and visits on the children the sins of the parents.

Some of the royal, and very many noble families of Europe, furnish melancholy examples of the misery engendered by this course, and the Jewish nation suffer from it dreadfully.

The English law in this respect is taken from the Levitical, and is so loose in its enactments, that there is nothing, as Paley observes, "to hinder a man from marrying his great niece."

The Roman law very properly prohibited the descendants of brothers and sisters intermarrying.

It is unnatural that the contract should be entered into by relations, and whatever is opposed to the laws of nature, fails; so, in this instance, incestuous marriages, instead of upholding the species, entail on posterity

the worst forms of mental and bodily disease.

Blackstone assigns no reason for marriage between relations being forbidden within the third degree of consanguinity ; he merely mentions the fact of the law being based on the Levitical Code.

Montesquieu* does not appear to have thought that there existed any physical objection to such contracts, but the reason he gives for relatives being prohibited from intermarrying, is, that in the earlier ages it was usual for whole families, however numerous, to remain in one abode, and that to preserve the chastity of the various members of this *clan*, marriage was altogether forbidden between two persons sprung from the same progenitors, and domiciled under the same roof.

It is to be regretted that other and more able writers have not taken up this subject, for unquestionably it is one of vital interest to the community. It appears never to have occupied legislators in a physical point of view, but the sole question appears to

* De l'esprit des lois.

have been one of legal convenience. The Parliament of this country has been accused of partial and precipitate legislation, and verily it would seem to be so in this instance, for it was only in August, 1835, that it passed a new marriage law, not after a moral or physical investigation into the merits of the case, but to accommodate an individual. It had been forbidden that a widower should marry his deceased wife's sister, but the children of the second marriage were legitimate, provided the marriage was not disputed during the parent's lifetime—to suit the ends of a particular party, the law of August, 1835, was enacted—it *confirmed* all such marriages, contracted previously, but declared them positively illegal for the future. The wisdom of this act, as acknowledged both by lawyers and the public, is very questionable; the feeling in families is strongly in favour of this re-union, and it seems a most desirable consummation, if it were only to soothe the pain occasioned by the previous loss; supposing children be left by the first wife, could a more humane

step-mother be found than the aunt would be likely to prove? There is no legal argument whatever for this crude enactment. The only shadow of a reason for its being passed into law, was Dr. Lushington's far fetched opinion, that, if one sister could fill the place of another at her death, there would be endless jealousies during life, and on this shallow argument, it is admitted, the harsh statute has been enacted. Soon may it be repealed. The previous question, namely that of allowing persons nearly related by blood to intermarry, ought to occupy the attention of every government that has the welfare of the community at heart, and if any man would doubt the necessity of such a course, let him refer in his mind to any case of this kind that has come within his own knowledge, and if he do not find the children the sufferers from this imputed imperfection in our law, the writer is willing to abandon the position he has taken.

CHAPTER XV.

Further plans of improvement suggested — Trench's Terrace from Westminster to London Bridge— London peculiar in having the banks of the river built on—The want of quays along the Thames — Martin's Terrace—Its triple purpose, Promenade, Wharfs, and Sewers—Purity of the water maintained thereby—Apathy of the Government in respect of Public Works — National Education — Waterloo Bridge—Impurity of the Atmosphere most pernicious to health in London—Smoke of Factories— Supply of fresh Air.

IN addition to the improvements already suggested for promoting the salubrity of the metropolis, and comfort of the people, there is one project which has been frequently before the public, and which, were the government and the inhabitants at large duly impressed with the importance of the subject, would probably, ere now, have been carried

into effect, namely, Trench's Terrace along the bank of the Thames, from Westminster to London Bridge. Not only would this work contribute materially to the healthiness of the town, but form a magnificent feature in its appearance.

How the banks of the river became crowded with buildings down to the water's edge it is difficult to imagine, but there is scarcely another city or town in Europe, having a river running through it, where there are not broad and open quays, separating the houses from the stream, forming bold and beautiful promenades and carriage ways, most convenient either for business or pleasure, and generally displaying the town itself to the greatest advantage. Neither Paris, Berlin, Vienna, Rome, nor St. Petersburg can boast of a river broad as the Thames, yet they all have fine open terraces bordering the current. The same advantage is possessed by towns in this country, the quays in Dublin, Glasgow, Hull, and Bristol, and other towns, are among the finest features of these ports ; it is only in London that the river is cooped

in by dusky brick warehouses, and the public excluded even from a view of it. The erection of a terrace, such as has been proposed, would not obstruct the communication already existing between the wharfs and the water, for it would pass over them, and, as there would be no necessity for the terrace being level throughout, it might rise or fall to accommodate particular situations or buildings. As it would occupy a space over the mud, left exposed between the tides, it would have a beneficial effect in preventing, to a certain extent, the evaporation of the effluvia which are so offensive along the shore in summer. This terrace, upwards of two miles long, and open to the public, from end to end, would be one of the grandest erections of modern times, and worthy of the first city in Europe; it would conduce to the health of the metropolis, directly and indirectly, for it would prevent the spread of miasmata and would encourage the inhabitants to exercise by the splendour of the promenade; at present the banks of the Thames in London are the most unseemly, dirty,

beggarly looking portions of the metropolis, and the plan proposed would not only remove a positive deformity, but replace it by what would be at once highly useful and ornamental.

This project was taken up about two years ago, by Mr. Martin, the eminent historical painter, who enlarged and so improved on the original plan, that Sir F. Trench resigned the authorship of it to him. Mr. Martin proposed, with a view to improve the supply of water to the metropolis, and to promote its salubrity generally, to lay a very broad, but close sewer, along the shore of the river, to construct wharfs over this, and to form a terrace over the whole.

He proposed that this work should extend two miles and a half on each side of the Thames in London, and calculated that by the great sewers receiving the contents of all the drains in the metropolis, instead of the river being polluted thereby, a vast improvement would be effected in the quality of the water supplied to the people, and that the terrace on the top would offer them a

strong inducement to take air and exercise, so essential to health.

This scheme is grand in the extreme, and several scientific gentlemen, friends and others of Mr. Martin, among whom was Sir F. Trench, formed themselves into a committee, to consider of its merits, who reported very favourably on it. There can be no doubt but that the water we drink in London is a most heterogeneous solution, and it is disgraceful that no means have yet been taken to prevent its contamination at its very source.

When we consider that this fluid enters into the preparation, or even the composition of nearly all our food, and when we reflect that all the abominations of this Augean Babylon are constantly sliding into it, knowing as we do that the same body of water keeps its position in and near London, without going far above or below it, we must come to the conclusion, that we are sapping the very foundation of our constitutions by daily drinking of this foul stream.

Without particularizing the quantities or qualities of the various impurities which pass daily into the Thames, both of which are fully detailed by Mr. Martin's Committee, it is sufficient to remark that, great as the evil is, it is daily becoming greater; and that, as the fish have abandoned it, and the sailors found it spoil their casks, the inhabitants of London will ere long be compelled to appease the deity of the river by golden offerings, while silver or even copper would now suffice. Upwards of 120 gentlemen, comprising peers, members of parliament, and the most scientific men in the metropolis, all of whose names are attached to the report, have given their opinion that Mr. Martin's plan is entitled to deep consideration.

It is remarkable that the British Government should display such apathy with respect to undertakings having for their object the public good; but so it is, that while, in foreign states, the government acts as the true guardian of the people, superintending their education and their amusements, en-

couraging talent and industry, protecting their health and morals, and ministering to their wants and necessities, England, as a nation, stagnates under the disreputable peculiarity of doing nothing for the people, but levying taxes from them to maintain a military and a naval force—nothing ! Yes, by the by, something has been done lately ; the Government of twenty-two millions of beings, with a revenue of fifty millions sterling per annum, has given the pitiful sum of £20,000 for the education of the whole country, a sum about equal to the income of one of our bishops ! Princely liberality ! Worthy of an indulgent fatherly government ! The example of Prussia, well worthy of imitation, has been long before our eyes, but no advantage has been taken of it.

It may be observed further, that little credit is due to the Government for the large undertakings and works that have been executed in the metropolis ; there is Waterloo Bridge, for example, so noble a specimen of art, that Canova declared it was worth coming from Italy, if it were only

to see it ; a public work of vast utility and importance, undertaken and executed by private individuals ; and this is not all—in reference to this bridge, the original proprietors impoverished themselves by the speculation, and were willing to transfer the property to Government at a much less price than it had cost, in order that it might be thrown open to the public, but the government REFUSED, and this noble structure, adjoining the greatest thoroughfare in the metropolis, is only used by a few straggling pedestrians permitted to pass over at a penny a head.

Of all the causes which are prejudicial to health in London, unquestionably the chief, both in point of effect, and in difficulty of correction, is the impurity of the atmosphere. Much might be done to prevent the immoderate generation of smoke and foul effluvia, but it is next to impossible to keep up a process of renovation of the air, inhaled and exhaled by nearly two millions of human beings, besides many thousands of larger animals. The impurity of the atmosphere

is plainly shown, as has already been observed, by the languid appearance and sickly character of children and young plants, as well as of the animal and vegetable kingdoms generally, and while such a multitude of inhabitants remain domiciled close together on one flat space of ground, this evil must continue to a greater or less degree.

The writer has for some time entertained an idea, which by many persons will be considered chimerical, that air might be brought into London by means of pipes, from a considerable distance, and supplied to private houses, in the same manner as gas is conveyed, and that it would repay the parties who put the plan into execution; an air pipe would be invaluable in many situations in the metropolis, and were the pipes once laid, the current expense of the supply would be trifling, so that private houses could be ventilated at a cheap rate; it is not unusual in mines, factories, and in ships, to have air forced among the persons employed in un-

healthy situations, and were the plan acted on in the way suggested, there is little doubt but that the undertaking would succeed as a pecuniary speculation, and certainly conduce to the health of the town. It has been suggested that air pipes might be made available for the purpose of conveying intelligence between places at great distances from each other; that, by means of a forcing pump, *globular* dispatches might be forwarded at a most rapid rate by day and night, at a very small cost, and that the whole kingdom might be interested by these subterraneous telegraphs with great advantage to the public, and certainly they would be free from interruption from heat or cold, dust or rain, frost or snow, fog, absolute darkness, or any ordinary obstruction. If ever such a system of communication should be adopted, the former scheme of drawing a supply of fresh air from the country to the metropolis is *a priori* accomplished, and the apparatus might be turned to a double account.

These suggestions, it is admitted, are advanced on theoretical grounds, but they are put forth in the hope that they may engage the attention of the practical engineer, and lead to public good.

CHAPTER XVI.

Importance of Life Assurance in London—Uncertainty of life—Origin of Assurance Companies—Fallacy of the Northampton Tables, from which most of the Companies calculate—Facility of obtaining correct Tables—Mr. Babbage's Calculations—Three classes of Assurance Companies—Great difference in Premiums—Life Assurance preferable to Funding Capital—Table of comparative advantages of each—Too high premiums demanded—Enormous profits of Companies—Table of different Companies, shewing their respective constitutions.

SINCE we find there is greater mortality and less longevity in London than in the country, it will not be out of place to make a few observations on the advantages of Life Assurance, and in doing so the writer has had frequent recourse to Mr. Babbage's excellent work on the subject, Mr. Gale's treatise, and to several papers more recently published by Mr. Edmonds.

The inducement to the inhabitants of

London to assure their lives, is obviously greater than exists in the country, the ordinary tenure of their existence being just one fifth less, as has been shewn in the preceding pages.

It is well known that a great majority of those assured are professional men, and others holding situations in public offices; and as there is a much larger number of persons of this class in the metropolis than out of it, in proportion to the population, it behoves them to look well into the system in which they so extensively embark, particularly as they have every facility of examining the constitution of the different assurance companies, and canvassing their respective merits.

The uncertainty of life has ever been the same, and man has in all ages witnessed the awful, and frequently unexpected approach of death; he has seen the distress occasioned by the loss of friends, and sympathized in the feelings of the relatives; he has too frequently known the widow, or orphans, reduced to penury by the death of the husband

and father, and often has lent a willing hand to aid them in their time of need, yet it is only of late years that men have turned their minds to the various schemes for making provision for their families in case of their decease.

It was at first difficult to say what sum paid annually by a person was sufficient to guarantee the repayment of a certain sum at his death, for the probability of life was not known, and there were no data upon which to calculate it. As soon, therefore, as the propriety and policy, in a pecuniary point of view, of receiving a certain sum annually from a person to insure the payment to his friends of a certain sum at his death, whenever that might be, was established, tables were sought of mortality and longevity; these, however, were not easily obtained, and the first insurances were effected in rather a hazardous way; the first table of mortality was constructed by Dr. Walley, from the mortuary registers of Breslaw for five years ending with 1691, and was inserted in his paper on the subject in the Philoso-

phical Transactions for the year 1693, with many judicious observations on the useful purposes to which such tables may be applied.

Since 1749, the returns of the annual births, and of the deaths at each age in all Sweden and Finland, have, by order of the government, been made to the commissioners appointed to look to the execution of these orders ; the number of the people of each age is also returned to them once in three years, and both in the enumerations and the registers, the sexes are distinguished.* Such returns do honour to the country of Charles V., Gustavus Vasa, Linnæus, and Berzelius. About 1760 similar tables were constructed in London, at Northampton, and at other places, but they were all made entirely from obituary registers, and were far from being correct. These were compiled principally for the guidance of the Equitable Life Insurance Company in the formation of policies, and are still used by them and by several other societies.

* Milne on Annuities.

It appears by tables that have been more recently constructed at Carlisle and Chester, that the mortality among the persons insured at the different offices is not nearly so great as would be indicated by the tables on which the policies were calculated; at the Equitable Office, where the Northampton tables were the guide, the actual decrease was found to correspond very closely with the calculations exhibited in the Carlisle table, which is considered the best that has ever been constructed.

The Amicable Insurance Office is the oldest institution of the kind, having been established in 1706. Since that time the value of the system of insurance, both to the companies and to the public, is better understood and more fully appreciated.

These offices rapidly increased in number, and at the present time there are in the metropolis about fifty of them, open for the insurance of life and against fire. The principle was taken up by Mr. Pitt, who, as soon as he turned his attention to it, foresaw the advantages of the scheme, and the enor-

inous profit that must accrue from it; as, however, it did not suit his purpose to wait for the profits to be realized, instead of opening a government office for the insurance of life, he opened one for the sale of annuities.

The Assurance offices, for the most part, use the Northampton tables of mortality.

The different offices, of course, would obtain the best information in their power, before stating to the public at what price they would undertake to assure a person's life. Nothing is more proverbially uncertain than the duration of life, where the maxim is applied to an individual; yet there are few things less subject to fluctuation than the average duration of a multitude of individuals.* The uniformity of a number of deaths in a community is remarkable; the excess or diminution in any one year rarely exceeds, above or below the average number, a small fractional part of the whole, not more than one thirteenth or one fifteenth

* Babbage.

part. If from this community are excluded the aged, the infants, and that portion of a population which is most exposed to the casual effects of disease and want, the variations from the mean number of deaths will be still less.*

When the first Assurance Offices were established, in the beginning of the last century, the Amicable, the Union, and the Exchange, the only tables of mortality in existence were those constructed by Dr. Walley. The experience of the Equitable Society was published at the beginning of the present century; and correct tables of mortality have more recently been constructed, by taking the numbers *living* of a certain age, and by observing how long the average, or half of them, lived; and it is satisfactory to know that the Equitable experience corresponds very closely with these tables. A large majority of the Assurance Offices have been established in the present century, and have therefore had ample and correct data to found their calcu-

* British Almanack Companion, 1831.

lations on, previous to commencing dealings with the public.

Mr. Babbage says the Northampton tables are, of any which possess the slightest reputation, those least calculated to represent the probable rate of mortality amongst a body of assurers; they are tables which an experience of thirty years has proved (for this purpose) to be erroneous, throughout a large part, in the proportion of two to one.

It will surprise those who are uninformed on the subject to be told that, notwithstanding the known inaccuracy of these tables, nearly all the Assurance Offices at the present day adopt them; eighteen openly avow the fact, and others do not state what tables are used; but the premiums they require shew that their calculations are equally unfavourable to the public.

For several of these it would be difficult to find any table of mortality which should represent their premiums; but the University Assurance society stand unrivalled in their ingenuity, and have succeeded in manufac-

turing tables which it is impossible to derive from any rates of mortality, real or imaginary.*

There are three classes of Assurance Companies.

I. Companies in which there is no proprietary, and where the contributors are, consequently, mutual assurers.

II. Companies in which the assured and the proprietary participate in the profits.

III. Companies in which the assured do not participate in the profits.

It has been shewn, so as not to admit of a doubt, by Mr. Babbage and others, that there is not the least necessity for any capital for an Assurance society, after it is fairly established, as the premiums of the living are always sufficient to pay the policies of those dying in the course of the year.

The system of mutual assurance is therefore most beneficial to the assurers, and consequently to the public, as the profits are shared by themselves, instead of being divided among shareholders and proprietors,

* Babbage, p. 67.

and a small proportion only assigned to them once in five or seven years.

Many of the companies that are not formed on the principle of mutual assurance, return considerable portions of the profits, but these returns are not near so great as they at first appear, for instead of being paid to the parties at the time, they are added to the policies, and are paid after their death, without interest being allowed in the meantime.

A person may resolve on laying out a certain sum, annually, at an assurance office, to secure a considerable return at his death; but the common motive which induces a person to effect an assurance is to secure, at his death, the repayment of a specific sum, and the smaller the annual premium required for the purpose, the more desirable to him. It is, therefore, to be regretted, that the plan of allowing the bonuses, or shares in the profits, to go towards the gradual reduction, and final extinction of the annual premium, instead of being added to the policy after death, is not more extensively adopted.

This principle is however acted on by some of the companies, but only to a partial extent. Some permit the bonuses to go toward the reduction of the annual premiums, but do not state what proportions of the profits the assurers are to expect, so that it is not probable that much may be expected from them.

As no capital whatever is requisite for the working of an assurance office, after it has been once established, so the public might reasonably expect to find that those companies which return no part of the profits to the assured in any shape, would require a lower premium for assuring an equivalent sum,—but no such thing; their charges are as high on the average, and in some cases even higher than those demanded by the companies of mutual assurance, or those which return portions of their profits.

This fact being obvious to any one that chooses to compare the relative merits of the various offices, it seems strange that persons should give a high price for a thing when the same could be had at much less.

The premiums demanded by some offices are disproportionably higher than others in the same class, and one is at a loss to understand why he should be willing to pay £7. 14s. 11*d.* per annum for an advantage which he can equally well acquire by paying £5. 14s. 9*d.* per annum, which are the rates per cent. charged by two different offices at the age of sixty.

Many persons are of opinion that they may save money by running all risks, and becoming their own assurers: if they live as long as they expect, and have considerable facilities of improving money, they would certainly possess more at the end of a certain period than one of the proprietary offices would repay them; but the chances are against the majority of persons possessing these advantages. Even though a person were to live long, and had the means of improving his capital greatly, the mutual assurance offices offer him advantageous terms for the outlay of his money. A person, aged twenty-five, laying out £100 per annum at the Equitable, secures a repayment in the

event of his death, at the end of ten years, of £5096, at the present rate of adding to the policies at that office; whereas, had the £100 per annum been placed at interest of even six per cent., it would in that time have amounted to only £1318. The Equitable society, up to 1820, added to a policy of

20 years date	.	.	77 per cent.
30	.	.	161
40	.	.	280
50	.	.	401

and one member, aged ninety, has £497 per cent. added to his policy.*

* British Almanack Companion (1831.)

To shew the advantage of assuring at such an office, instead of funding one's capital, Mr. Babbage constructed the following table :

Will possess at end of years.	A person aged 25 paying £100 per annum premium assures £4160.	A person laying out £100 per annum at 3 per cent.	Ditto 4 per cent.	Ditto 5 per cent.	Ditto 6 per cent.
10	5096	1146	1201	1257	1318
15	6032	1860	2002	2158	2328
20	7072	2687	2978	3307	3679
25	8528	3646	4165	4773	5486
30	10,400	4757	5608	6644	7906
35	12,688	6046	7365	9032	11,143
40	15,246	7540	9503	12,080	15,476
45	18,054	9272	12,103	15,970	21,274
50	20,862	11,280	15,267	20,935	29,034

By this table it is shewn that a person must continue laying out his money fifty years at 5 per cent. before it becomes equal to what the Equitable policy would amount to.

The chief fault with the Assurance Offices is, that too high premiums are demanded. Many more persons would assure were the charges considerably reduced, which they might be, and still great profits be made.

The majority of them employ tables of

mortality which are notoriously incorrect, the incorrectness being in their favour : they calculate the interest of money at three per cent., by which their profits are made to appear smaller than they really are ; and the share of profits awarded every five or seven years is not actually added till the death of the individual, as no interest is paid on them in the mean time.

In a company of mutual assurers, it is quite right and prudent to take a considerable excess of premium, in order to prevent the fluctuations in the number of deaths rendering any call necessary.

But where there exists a subscribed capital, its very object is to equalize such variations, and it is unreasonable to demand as large premiums as are proper in a society of mutual assurance.*

The profits at the Assurance Offices are immense. In 1820, at the Equitable office. an account of the state of the society's concerns was read, by which it appeared that funds to the amount of six millions had

* Babbage, page 105.

been accumulated since its establishment in 1762, and it was understood that its capital was, when these observations were made, (1831) about ten millions and a half, valuing the three per cents. at 90; while the very large bonuses assigned to policies prove that no inconsiderable part of this capital is profit.

I think, says Mr. Babbage, that it may be fairly stated that those offices which calculate their premiums by the Northampton tables, make a gross profit of 30 per cent., without including the large additional profit that arises from the average rate of interest being above three per cent., the rate at which those tables are calculated.

As the value of life is less in London than in the country, one might suppose that the Assurance Offices would guard themselves against what appears to be an additional risk. The writer applied to six of the original offices to know if they found a material difference in the mortality among those assured in London and the country; five of these refused to tell any of the secrets of the

trade; the sixth, however, the Royal Exchange, through their actuary, Mr. Jones, freely explained that unquestionably there would be a difference, but that they protected themselves from extra risk in London by a more rigorous personal examination by their directors, and by their own medical officer, of the candidate for assurance, which ordeal was, in great measure, dispensed with in the country.

Life assurance is now better understood, and more fully appreciated, than it formerly was; it is unquestionably beneficial to the public, however dear they may be called on to pay for it; it is such a national good that its effects and influence could not be too extensively diffused among the people; it is peculiarly beneficial to those who live by their own exertions, or who are in any way engaged in business. It is a provident principle that should be encouraged in all classes of the community, and its advantages should, if possible, be placed within the reach of all.

The expense, no doubt, is an obstacle to

many persons assuring, who would be willing otherwise to avail themselves of the system.

The average age at which people assure was found by Mr. Babbage to be forty-seven, the charge for assurance at which age is about 4 per cent., and it frequently happens that the person to whom a policy of £500 or £1000 would be a most desirable object, cannot afford to lay out £20 or £40 per annum to secure it.

There is very little doubt but that the charges for assurance might be very considerably reduced, and yet great profits made, and it has often occurred to the writer of these observations, that it has been a great oversight on the part of the Government that it has not opened an Office for the purpose of Life Assurance.

The Government would require no capital even to commence operations; it would enjoy the unbounded confidence of the public, and the profits that would accrue from the business would certainly be immense, after giving the public all the advantages that are

afforded by the most liberal of the existing companies.

The reader will find a Table of the different Companies at the end of this treatise, by which it will be seen how widely some offices differ from others in their constitution, terms, and, consequently, advantages to the public.

The several points forming the subject matter of this treatise having been gone over, it remains only to say a few words in conclusion; apology is due for the many imperfections it contains; some allowance is however to be made from the subject being somewhat novel, and from the sources of information being not only scattered but difficult of attainment,—and grievously deficient when obtained; indeed, statistics of all kinds are in their infancy in this calculating country. The writer has further to explain that he is himself a novice in writing, but trusts his humble efforts will be favourably received, and that they may lead to public benefit. The subject, it will be admitted, is one of importance, and the more

it is considered, the greater probability there will be of improvements being introduced, both in the value of health and life, and in the method of investigating the subject. To the inhabitant of the metropolis it is not only interesting but important to know the circumstances that regulate his health, influence his prospects in life, and affect the welfare and happiness of his children ; while, on the other hand, it is highly desirable that the inhabitants of the country should know the nature and extent of the disadvantages attending a residence in town, to guide them in their decision, if they contemplate changing their domicile, or placing members of their family in London ; and it is hoped that the consideration of the subject, and the suggestions which have been proposed, may lead to improvement in the conduct and habits of individuals, and consequently to the health and happiness of the public at large.

COMPARATIVE VIEW OF

	Name of Company.	Esa- blished.	Table of Mortality.	Limits of Voyage and Residence.	Capital.	
					Nominal.	Paid.
All the profits shared by the Assured.	CLASS I.				£	£
	Amicable	1706	Northampton	.....	5,000,000	500,000
	Equitable	1762	Northampton	Helvoet and Brest	none	....
	London Life	1806	ditto	Brest and Rotterdam	none	....
	Norwich Union	1808	....	Elbe and Brest	none	....
	Scottish Widows' Fund	1815	Equit. Exp.	.....	none	....
	Mutual Life	1834	ditto	Elbe and Tagus	none	....
	Metropolitan	1836	....	Europe & N. America	200,000	10,000
A portion of the profits shared by the Assured.	CLASS II.					
	Union	1714	Northampton	Texel and Brest	300,000	30,000
	London Assurance	1721	....	Hamhurgh & Bordeaux	....	....
	Westminster	1792	Northampton	Texel and Havre	....	....
	Palladium	1797	ditto	Europe	2,000,000	80,000
	Provident... .. .	1806	ditto	Texel and Brest	250,000	25,000
	Eagle.... .. .	1807	ditto	ditto	1,000,000	100,000
	Hope	1807	ditto	ditto	1,000,000	100,000
	Rock	1807	ditto	Havre and Rotterdam	2,000,000	200,000
	West of England	1807	ditto	Texel and Brest	600,000	....
	Atlas	1808	....	Hamburg and Brest	1,200,000	120,000
	North British	1809	....	Texel and Brest	....	....
	European	1819	....	ditto	1,000,000	100,000
	Imperial	1820	Northampton	Ostend and Havre	750,000	75,000
	British Commercial	1820	....	Europe	1,000,000	100,000
	Guardian	1821	....	Texel and Brest	2,000,000	200,000
	Law Life	1823	Northampton	ditto	1,000,000	100,000
	Scottish Union	1824	Young's Tab.	Europe	5,000,000	....
	Economic	1824	....	Texel and Brest	200,000	50,000
	Crown	1824	....	Elbe and Brest	1,500,000	50,000
	Clerical and Medical..	1825	....	ditto	....	....
	University	1825	....	ditto	600,000	60,000
	Alliance	1824	....	Texel and Havre	5,000,000	500,000
	Legal and General	1836	....	most of Europe	1,000,000	....
	National	1830	....	Elbe and Brest	500,000	....
	Universal	1834	....	.....	500,000	....
	Protector	1835	....	Europe	1,000,000	50,000
	United Kingdom	1834	....	ditto	....	....
	Minerva	1835	....	Brest and Hamburg	1,000,000	100,000
	Licensed Victuallers..	1836	....	Elbe and Brest	150,000	30,000
	Independent	1837	....	ditto	1,000,000	....
	None of the profits shared by the Assured.	CLASS III.				
Royal Exchange.. .. .		1722	Northampton	Flushing and Ushant	745,000	....
Pelican		1797	ditto	Europe	....	....
Globe		1803	ditto	Texel and Brest	1,000,000	100,000
Albion		1805	ditto	To Ireland	1,000,000	100,000
Sun .. .. .		....	....	Hamburg & Bordeaux	....	....
Asylum		1824	....	By agreement	240,000	60,000
Promoter .. .. .		....	....	Brest and Texel	....	....
Argus		1834	....	Europe	....	....
York & N. of England		1834	....	.....	500,000	50,000
Standard of England		....	....	Europe.	1,000,000	....

N. B. Most of the Companies of the Second Class belong also to the Third Class, at lower Premiums.

Profits returned to the Assured.			Premium per cent. at age of		
Proportion.	How returned.	When returned.	20	30	40
			£ s. d.	£ s. d.	£ s. d.
7-eighths	Added to Policy	annually	2 0 6	2 10 6	3 5 0
uncertain	ditto	every 10 years	2 3 7	2 13 5	3 7 11
all	Reducing Premium	annually aft. yrs.	*2 3 7	2 19 0	3 15 0
uncertain	Added to Policy	every 7 years	2 0 6	2 10 0	3 3 6
all	ditto	ditto with interest	2 1 6	2 11 1	3 5 6
all profits	Reducing Premium	annually	1 18 0	2 9 5	3 7 6
all to memb	ditto	not fixed	1 19 6	2 9 9	3 6 4
uncertain	Added to Policy	every 7 years	2 3 7	2 13 5	3 7 11
two-fifths	Reducing Premium	annually	2 1 4	2 10 7	3 4 7
uncertain	uncertain	every 10 years	2 3 7	2 13 4	3 7 11
four-fifths	Added to Policy	every 7 years	2 3 7	2 13 5	3 7 11
uncertain	ditto	ditto	2 3 7	2 13 5	3 7 11
four-fifths	Ad. to Pol. or Red. Prem.	ditto	2 2 6	2 9 10	3 4 4
two-thirds	ditto	ditto	2 3 7	2 13 5	3 7 11
two-thirds	Added to Policy	ditto	2 3 7	2 13 5	3 7 11
half	Ad. to Pol. or Red. Prem.	every 5 years	1 19 3	2 8 0	3 1 3
uncertain	ditto	every 7 years	2 3 7	2 13 5	3 7 11
two-thirds	ditto	ditto	2 1 0	2 10 6	3 4 11
two-thirds	Added to Policy	ditto with interest	1 19 0	2 9 3	3 4 3
two-thirds	ditto	every 5 years	2 3 7	2 13 5	3 7 11
3-fourths	Ad. to Pol. or Red. Prem.	every 7 years	2 3 7	2 13 5	3 7 11
half	Ad. to Pol. or Red. Prem.	every 7 years	2 1 0	2 10 7	3 5 0
four-fifths	Added to Policy	every 7 years	2 3 7	2 13 5	3 7 11
two-thirds	Ad. to Pol. or Red. Prem.	after 1842	1 18 5	2 9 11	3 5 0
3-fourths	ditto	every 5 years	1 14 7	2 4 3	2 19 9
two-thirds	ditto	every 7 years	1 19 11	2 10 4	3 4 7
uncertain	ditto	every 5 or 7 years	2 0 6	2 10 4	3 3 8
four-fifths	ditto	every 5 years	2 1 5	2 10 9	3 4 7
uncertain	ditto	ditto	1 16 11	2 9 2	3 6 6
four-fifths	At option of Assured	every 7 years	2 2 5	2 11 3	3 6 5
one-fifth	Ad. to Pol. or Red. Prem.	annually	2 3 6	2 13 0	3 8 0
3-fourths	ditto	ditto after 1840	1 18 8	2 8 10	3 3 0
ditto	ditto	every 5 years	2 1 0	2 10 7	3 5 0
two-thirds	ditto	ditto	1 18 8	2 7 1	3 3 4
four-fifths	ditto	ditto	2 1 0	2 10 7	3 5 0
two-thirds	ditto	ditto	1 18 10	2 5 8	3 1 3
half	ditto	ditto	1 11 0	2 0 0	2 15 0
none	.....	.....	2 3 6	2 13 3	3 8 0
none	.....	.....	1 16 1	2 6 4	3 2 8
none	.....	.....	2 3 7	2 13 5	3 7 11
none	.....	.....	1 15 9	2 6 0	3 2 3
none	.....	.....	1 16 11	2 9 2	3 6 6
none	.....	.....	1 10 7	2 0 5	2 15 10
none	.....	.....	1 11 8	2 2 2	2 17 0
none	.....	.....	1 11 2	1 19 10	2 13 9
none	1 13 9	2 3 0	2 17 3
none	1 10 11	1 19 7	2 13 5

* At age of 21.

† And four consecutive years.

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